PART II.

AGRICULTURAL DESCRIPTION OF THE COUNTIES OF FLORIDA.

LIST (WITH BOTANICAL NAMES) OF THE MOST COMMON TIMBER TREES, SHRUBS, AND WEEDS OCCURRING IN FLORIDA.

This list is intended to include only the more common trees and shrubs, most of which are mentioned in county descriptions.

Some of the more common herbaceous plants have already been mentioned above in the general description and their botanical names given.

In the elevated and bottom lands of the upland region:

Quercus falcata, Mx. Spanish oak, red oak.
Quercus tinctoria, Bastr. Black oak.
Quercus coccinea, Wang. Scarlet oak.
Quercus rubra, L. Red oak.
Quercus obtusiloba, Mx. Post oak.
Quercus alba, L. White oak.
Quercus aquatica, Catesb. Water oak.
Quercus nigra, L. Black-jack.
Quercus Phellos, L. Willow oak.
Pinus mitis, Michx. Short-leaf pine.
Pinus Tæda, L. Old-field pine.
Pinus glabra, Walt. Spruce pine.
Juglans nigra, L. Black walnut.
Carya tomentosa, Nutt. Hickory.
Magnolia grandiflora, L. Magnolia.
Magnolia Fraseri, Walt. Large-leaf magnolia.
Liriodendron tulipifera, L. Poplar.
Cornus Florida, L. Dogwood.
Diospyros Virginiana, L. Persimmon.
Liquidambar styraciflua, L. Sweet-gum.
Nyssa multiflora. Wang. Sour-gum.
Fagus ferruginea. Ait. Beech.
Platanus occidentalis, L. Sycamore.
Ulmus Americana, L. Elm.
Asimina triloba, Dunal. Papaw.
Asimina pygmæa, Dunal. Dwarf papaw.
Oxydendrum arboreum, DC. Sour-wood.

The trees and shrubs of the hummocks are, to a great extent, the same as those of the bottom lands of the upland region; but the following are more characteristic of the hummocks:

Quercus virens, Ait. Live oak.
Persea Carolinensis, Nees. Red bay.
Sabal palmetto, R. S. Cabbage palmetto, along the coast.
Juniperus Virginiana, L. Red cedar.
Fraxinus Americana, L. White ash.

Many of the trees above named are also found along the borders of swamps; but the following are more characteristic of swamps:

Taxodium distichum, Rich. Cypress.
Fraxinus platycarpa, Michx. Water ash.
Nyssa uniflora, Walt. Tupelo.
Quercus lyrata, Walt. Over-cup oak.
Prinus, L. Swamp chestnut-oak.
Magnolia glauca, L. Bay.
Cephalanthus occidentalis, L. Button bush.
Enonymus Americanus. L. American strawberry bush.
Cliftonia ligustrina, Banks. Titi.

In the pine region the more common trees and shrubs are:

Pinus australis, Michx. Long-leaf pine, yellow pine.
Pinus Cubensis, Grisebach. Pitch pine, along the coasts and in the lowlands south of latitude 27°.
Quercus cinerea, Michx. High-ground willow oak.

In the sterile pine lands other species of oaks have a dwarfed or scrubby growth.

Carya tomentosa. Hickory; also often assumes a shrubby growth on pine barrens.
Sabal serrulata, R. S. Saw palmetto.
Sabal Adansonii, Guerns. Dwarf palmetto. These two grow commonly on low sandy pine lands.
Zamia integrifolia, Wild. Coontie. Low grounds of southern Florida.
Kalmia latifolia, L. Calico bush.
Kalmia hirsuta, Walt. Wicky-flat barrens.
Prinos glabra, L. Gallberry. Flat pine barrens.

The following list embraces the plants most troublesome as weeds:

Cassia obtusifolia, L.
Cassia occidentalis, L.
Cassia Marilandica, L.
Cassia Chamæcrista, L.
Cassia nictitans, L., var. *aspera*.

These cassias have the general name of coffee-weeds or coffee-plants. The most common and troublesome as weeds are perhaps *obtusifolia* and *Chamæcrista*.

Richardsonia scabra. Florida clover, Indian clover, beggar-lice, and so on. This plant grows everywhere in sandy fields. By some it is considered very good pasturage, and therefore is not an unmitigated evil.
Ambrosia artemisiæfolia, L. Hog-weed.
Xanthium strumarium, L. Cocklebur.
Helenium tenuifolium, Nutt. Yellow dog-fennel; a most troublesome weed. It is eaten in the spring by cattle, and imparts an intensely bitter taste to the milk.
Maruta Cotula, DC. Dog-fennel, May-weed. Formerly more troublesome; now being driven out by *Helenium tenuifolium*.
Bidens frondosa, L. Beggar-ticks.
Bidens bipinnata, L. Spanish needles.
Amarantus spinosus, L. Careless-weed.
Chenopodium Anthelminticum, L. Worm-seed, Jerusalem oak.
Dactyloctenium Ægyptiacum, Willd. Crow-foot grass.
Panicum sanguinale, L. Crab-grass.
Cenchrus echinatus, L. Sand spur, cockspur.

AGRICULTURAL DESCRIPTION

OF THE

COUNTIES OF FLORIDA.

The counties are here grouped under the heads of the several agricultural regions, previously described, to which each predominantly belongs. Each county is described as a whole. When its territory is covered in part by several adjacent soil regions, its name will be found under each of the several regional heads in which it is concerned, with a reference to the one under which it is actually described. In the lists of counties placed at the head of each group the names of those described *elsewhere* are marked with an asterisk (*); and the reference to the head under which these are described will be found in its place, in the order of the list, in the text itself.

The regional groups of counties are placed in the same order as that in which the regional descriptions themselves are given.

The statements of areas, woodland, prairie, and so on, refer to the original state of things, irrespective of tilled or otherwise improved lands.

Appended to the description of each county from which a report or reports have been received is an abstract of the main points of such reports, so far as they refer to natural features, production, and communication. Those portions of the reports referring to agricultural and commercial practice are placed in a separate division (Part III), following that of the county descriptions.

In making abstracts of the reports it has been necessary, in most cases, to change somewhat the language of the reporter, while preserving the sense.

I.—OAK, HICKORY, AND PINE UPLAND REGION.

The following counties lie wholly or partly within this region: In western Florida, Walton,* Washington,* Calhoun,* and Jackson; in middle Florida, Gadsden, Liberty,* Leon, Jefferson, and Madison.

WALTON.

(See under "Long-leaf pine region".)

WASHINGTON.

(See under "Long-leaf pine region".)

CALHOUN.

(See under "Long-leaf pine region".)

JACKSON.

Population: 14,372.—White, 5,637; colored, 8,735.

Area: 1,000 square miles.—Woodland, all. Red lime-lands, 150 square miles; oak and hickory uplands, including pine ridge lands, 400 square miles; long-leaf pine lands, 450 square miles.

Tilled lands: 84,738 acres.—Area planted in cotton, 26,920 acres; in corn, 33,780 acres; in oats, 6,174 acres; in rice, 88 acres; in sweet potatoes, 1,622 acres; in sugar-cane, 566 acres.

Cotton production: 6,144 bales; average cotton product per acre, 0.23 bale (short staple), 324 pounds seed-cotton, or 108 pounds cotton lint. Thirty-two per cent. of the tilled lands are devoted to cotton culture.

The whole of Jackson county is underlaid by limestone, upon the eroded surface of which have been subsequently deposited thick beds of sand, pebbles, and red or yellow loam. Frequently the upper beds of these drifted materials are mostly sand, and when that is the case, as in the western or northwestern part of the county, where denudation has been least effective, high, rolling land prevails, with sandy soil, and universally clothed with a growth of the long-leaf pine.

The Chipola river and its tributaries traverse the county from north to south near its center, and in its drainage area the sands have been to great extent removed, in some cases laying bare the limestone itself. Along this river a strip of country 20 or 30 miles long and perhaps 10 miles wide has a rich loamy soil, thoroughly marled and rendered fertile by the calcareous matter of the country rock. This is known in the county as red lime-land. Upon these red lands white orbitoides limestone (Vicksburg) was observed in several outcrops, usually a little above the general level of the red fields. The area occupied by this kind of land is perhaps about one-sixth of the county lying adjacent to the Chipola river and its tributaries.

Between the Chipola and the Chattahoochee rivers the original thickness of sands and clays remains in great measure, forming high pine barrens, where, in many places, the only associate of the long-leaf pine is a dwarf oak. Toward the Chipola, where the limestone is near or at the surface, the big spring of Chipola, between Marianna and Chattahoochee, breaks up from the foot of a bluff of this rock some 20 feet high and runs off in a large stream.

Near the southern limit of the county, and reaching down into Calhoun, the oak uplands, with brown loam soil and red clay loam subsoil, which form so large a part of the uplands of Leon and Gadsden counties, are met with on the western side of the river. These uplands extend across the county to Washington, where they subside as detached hills.

It will be seen that Jackson county possesses a large area of excellent farming lands, which may be described under the heads of—

1. Red lime-lands of the Chipola and its tributaries.
2. Brown loam uplands, with red clayey subsoil, timbered chiefly with oaks and hickories. To these may be added:
3. The long-leaf pine ridge lands and rolling pine lands, which are of less value agriculturally.

Of these soil varieties the brown loam and the pine ridge lands are commonly found in the other upland counties, but the red lime-lands have not been met with in any large bodies outside of Jackson county.

ABSTRACT OF REPORT OF JAMES V. BURKE, OF MARIANNA.

This report refers to the lowlands of the Chipola river, a tributary of the Chattahoochee, and to the high rolling and level lands between the Chipola and the Chattahoochee, and westward of the Chipola. The soils described are those enumerated above.

Red lime-land.—This has a brown or reddish loam soil with a red clayey subsoil (sometimes bluish), with limestone underlying at 3 to 8 feet below the surface. It supports a growth of several species of oak, hickory, beech, poplar, and dogwood, with short-leaf pine where the soil is a little sandy. Though productive, it is not easy to till, as it is very sticky in wet weather and hard in dry seasons. Most of this land is cleared and cultivated. The usual crops are produced, but cotton (short staple) upon at least one-half of the land. The stalks vary in height from 2 to 10 feet, according to locality, being about equally productive at all heights. From fresh land the yield is 1,000 to 2,000 pounds of seed-cotton to the acre, and 1,425 to 1,650 pounds are required to make a 475-pound bale. After ten years' cultivation the average yield is said to be from 800 to 1,500 pounds. Cotton from this land rates from good ordinary to low middling, and from the cultivated land it is usually one grade better, owing to the fact that less cotton rots in the boll because of smaller weed. Much of this land, about one-sixth, now lies turned out. When taken again into cultivation it is usually not much improved, for it supports, when not cultivated for two or three years, a dense growth of broom-sedge, which keeps it pretty well drained of available plant-food. On account of the generally level character and the tolerably stiff soil of the red land there is not much damage done by washes or gullies. In cases, however, where horizontalizing and hillside ditching are practiced the damage from this cause is almost completely checked. The injury to the valleys from washing is due to the fact that they are covered with a coarse gravelly sand.

Next in importance to the red lime-lands are the oak and hickory or brown loam uplands, which have as subsoil the yellowish or red loam alluded to above. In places in this county pebbles also are found intermixed with the other materials constituting the subsoil. The usual growth is very similar to that upon the limestone lands, with perhaps a larger percentage of short-leaf pine. The soil is a fine sandy loam of a grayish to brown color, easily tilled in all seasons, and is well suited to all the southern crops, although about one-half the area is planted in cotton. The usual height of stalk is from 2 to 3 feet.

On fresh land the seed-cotton product is 1,000 pounds to the acre, and about 1,200 to 1,300 pounds are required to make a 400-pound bale. The staple is classed as low middling. Under cultivation the land deteriorates, so that after five years, without manuring, the seed-cotton product per acre is only 500 pounds, of which 1,365 to 1,425 pounds are needed to make a 475-pound bale. The fiber is said to improve slightly as the land deteriorates. Of this land very little now lies turned out, and that which has rested and been taken again into cultivation is much improved, being nearly as productive as the fresh land. From the uneven character of the surface, gullies and washes are numerous, and the valleys are injured to the extent of 25 to 50 per cent. by the washings from the uplands. Hillside ditching and horizontalizing, when carefully carried out, are found to be effective remedies against this evil.

The long-leaf pine ridge lands occupy at least one-third of the area, predominating in the western parts of the county and toward the south. The natural growth is long-leaf pine, with scrub oaks, with which are associated trees of black-jack and other species of oak and hickory where this soil variety approaches the others above described. The three principal types of soil herein mentioned grade off into each other where they come in contact. The soil is a coarse sandy, sometimes gravelly, material, of a whitish or gray color. These characters are frequently maintained without serious change to a depth of 3 to 5 feet, and below this there is often a heavy, close sand, not very pervious to water. Pebbles also are occasionally found in the subsoil. In these pine lands limestone lies deep below the surface. From its nature this soil is best suited to sugar-cane, ground-peas, and sweet potatoes, though with the use of fertilizers cotton may very profitably be cultivated. Very little cotton, however, is produced upon it.

The fresh land, unmanured, will yield from 300 to 700 pounds of seed-cotton to the acre, and the staple is rated as good. The stalk is low, from 2 to 2½ feet in height, and never runs to weed. Under cultivation this soil is naturally soon exhausted, yielding on an average after five years (unmanured) 300 pounds of seed-cotton, the staple of which, however, is by some thought to rate better than that from the fresh land. Where such lands lie well they are coming into notice, because of the ease with which they are cultivated and their safety, and from the fact that with small outlay for commercial fertilizers good returns are obtained.

Upon the red lime-lands the natural tendency of the cotton-plant is to go to weed, particularly in wet seasons; on the loam lands it rarely goes to weed, and on the pine ridge lands never. Any tendency in this direction may usually be checked by the application of phosphates at the rate of 100 pounds to the acre. This stimulates the plant to early fruiting, and will increase the yield 25 to 50 per cent. The most troublesome weeds upon all classes of soil are crab-grass, crow-foot grass, coffee-weeds, and cockleburs.

Shipments of cotton are made from September 10 to January 1, by steamer or by rail, to Columbus and Savannah, Georgia. The rate of freight per bale is 75 cents to Columbus and $2 25 to Savannah.

GADSDEN.

Population: 12,169.—White, 4,114; colored, 8,055.

Area: 540 square miles.—Woodland, all. Oak and hickory uplands, 180 square miles; long leaf pine ridge lands, 235 square miles; hummocks, 125 square miles.

Tilled lands: 65,304 acres.—Area planted in cotton, 19,464 acres; in corn, 25,753 acres; in oats, 2,853 acres; in rice, 139 acres; in sweet potatoes, 898 acres; in sugar-cane, 443 acres.

Cotton production: 4,696 bales; average cotton product per acre 0.24 bale (short staple chiefly), 345 pounds seed-cotton, or 115 pounds cotton lint.

Throughout Gadsden county the country rock is a white limestone of Tertiary (Eocene) age.

In the upper part of the county, from Chattahoochee to Quincy, there is a belt of high table-land, the elevation of which above sea-level cannot be less than 300 feet. Northward toward the Georgia line, upon the drainage slope of Flint river, this table-land breaks off into brown loam uplands, and lower down into rolling pine lands.

The distribution of the soil varieties is to a great extent determined by the position of the water-courses. Upon the high plateau above mentioned, and in general upon the ridges separating adjacent drainage basins, the soil is quite sandy, and the timber chiefly long-leaf pine, associated in places with black-jack and other species of oak, with some hickories. In the poorer spots the growth, both of pines and oaks, is stunted. An undergrowth of wire-grass is found throughout this area, which occupies about one-third of the county.

The sandy soil is underlaid at varying depths by a reddish clayey loam, which, as we descend from the table-lands toward the water-courses, itself forms the surface (the overlying sandier portions having been washed away), and constitutes the red and brown loam uplands. These cover, perhaps, another third of the county. As is usual wherever the red and brown loams form the surface materials, covering the underlying country rocks in considerable thickness, the surface is generally quite broken.

At still lower levels, where the loams forming the soils and subsoils of the uplands have been mostly removed by denudation and only comparatively thin deposits of sandy material have been left upon the country limestone, the gently undulating or rolling country is timbered mostly with large pines. Not much of Gadsden county is of this kind, but the loam uplands, as a rule, reach down to the vicinity of the water-level in the various streams, where the hummocks, (*a*) both clay and sandy, or, more properly speaking, the second bottoms, begin.

Upon the table-lands first mentioned the cultivation of the sea-island cotton is reaching considerable proportions. Upon the other varieties of soil the upland cotton is almost exclusively cultivated.

ABSTRACT OF REPORT OF JESSE WOOD, OF MOUNT PLEASANT.

This report refers to the lowlands of Mosquito and Flat creeks, tributary to the Apalachicola river, and to the highlands between Chattahoochee and Quincy.

The soils described are: 1st, those of the table-land; 2d, of the oak and hickory uplands; 3d, clay hummocks; 4th, sandy hummocks.

The table-lands, or pine ridge lands, are cultivated in cotton, corn, oats, tobacco, sugar-cane, and potatoes. The soil is sandy, and the growth long-leaf pine, with some oak. Of late years the cultivation of grapes has become a very important item. The use of fertilizers in cotton-planting on this land is becoming general, none being produced without them. With fertilizers this is considered very safe for cotton, which is now cultivated on about one-third of the cleared land. Under favorable circumstances the yield is 700 to 800 pounds of seed-cotton to the acre, the staple being rated as "low middling". Very little if any of the table-land now lies turned out, and on account of its position there is no injury from washing or gullies.

The soil next in importance, or probably of equal importance, is that of the red clay or loam uplands, occupying one-third of the area of the county. This soil supports a natural growth, which varies with the soil itself. Where this is sandy, long-leaf pine is the chief timber tree, but with increasing proportions of loam or clay oaks and hickory and short-leaf pine replace partly or altogether the long-leaf species. Below the red clay or loam, which is of varying thickness, are found beds of sand and occasionally of pebbles, especially westward within the drainage area of the Apalachicola river, and underneath all the limestone, which, however, does not usually appear at the surface except in the vicinity of the river. This soil is good for all the ordinary crops, but is considered best adapted to cotton (short staple), which is cultivated on perhaps one-third of the cleared land. The height of the stalk when most productive is 4 feet, and on fresh land, according to its quality, a yield of from 800 to 1,000 pounds of seed-cotton to the acre may be expected. The staple is rated as "low middling". This soil retains well its fertility, yielding 500 to 700 pounds of seed-cotton to the acre after ten years' cultivation without manure. With long-continued cultivation of the land the staple is slightly deteriorated. Unlike the table-lands, these uplands suffer from washing, but the lowlands are usually improved rather than injured by washings from high levels. This trouble can be successfully remedied by hillside ditching and horizontalizing. One-fourth of the land originally cultivated now lies turned out, and when again taken into cultivation it produces nearly as well as when fresh, especially when cattle have not been allowed to graze upon it.

The clay hummocks are situated, as above indicated, near the creeks, and they constitute perhaps one-sixth of the tillable area of the county. The natural growth is beech, white oak, hickory, magnolia, spruce pine, etc. The color is usually what is known as mulatto, and the depth of soil to where change of color is noticed is from 5 to 6 inches. The subsoil is a clay or loam, sometimes red, sometimes yellow, sometimes what is called pipe-clay. This soil, as well as that of the red clay uplands, is easily tilled, except in dry weather, when the ground is likely to become too hard. It is neither early nor late, warm nor cold, but of medium quality. The three staple crops—corn, cotton, and oats—are cultivated, the soil being apparently best adapted to cotton, which is planted on about three-fourths of the cleared

a It will be seen that in the brown loam region the term hummock is usually applied to the lowlands in the vicinity of water-courses or lakes, though sometimes also to the uplands which bear a growth of oaks and hickories. In this respect the custom here differs from that prevailing in some parts of the peninsula, where the term hummock lands is almost invariably applied to places where the underlying limestone mingles with and marls the usually sandy surface soil.

land. The usual height of stalk at which it is most productive is from 4 to 6 feet, and the seed-cotton product on fresh land under favorable circumstances is from 800 to 1,200 pounds. The staple rates as "low middling". Like that of the red clay uplands, this soil retains well its fertility, yielding after ten years' cultivation, without manure, 600 to 800 pounds of seed-cotton, according to quality; and, as is usually the case, the staple is slightly deteriorated. From its position this class of land is much injured by gullies, the valleys being, on the other hand, if anything, improved by washings from the uplands. Horizontalizing and hillside ditching are practiced to some extent, and, when properly done, check the damage from washing. About one-half of this land lies turned out. It recovers rapidly when cattle are kept off, and when again taken into cultivation produces nearly as well as fresh land.

Closely associated with the above, and occupying similar positions along the banks of creeks, are the sandy hummocks. The natural growth upon these is the same as that upon the clay hummocks, with the addition of willow oak. The subsoil, as well as the soil, is more or less sandy. This soil is warm, early, well-drained, and easily cultivated, producing well the three staple crops, but being best adapted to corn, since cotton is much more likely to go to weed upon this than upon the other soils above described. In extent the sandy hummocks are about like the clay hummocks, embracing one-sixth of the cultivated lands. Only about one-third is planted in cotton, which grows well when the land is fresh, but soon falls off with continued cultivation. The staple is usually rated as "low middling", but it is inferior to that of cotton grown upon the other varieties of soil. The fresh land yields 800 to 1,200 pounds of seed-cotton to the acre, but after some years' cultivation not more than 300 or 400 pounds are produced. The staple from the old land is very much inferior to that from the fresh. Probably one-half of the sandy hummock land originally cultivated now lies turned out, but it is quite productive when reclaimed, provided that cattle have not been allowed to graze upon it. As to injury from washing and remedy for the evil, what has been said above under clay hummocks applies equally here.

In all these soils late planting and wet seasons are looked upon as producing a tendency to run to weed, and early planting and topping are suggested as remedies. Crab-grass is by far the most troublesome weed.

Shipments of cotton are made from September 1 to March, by rail and water, to Savannah, Columbus, and to New Orleans. The usual rate of freight to Savannah, to which port most of the cotton goes, is 75 cents per hundred pounds.

LIBERTY.

(See under "Long-leaf pine region").

LEON.

Population: 19,662.—White, 2,822; colored, 16,840.

Area: 900 square miles.—Woodland, all. Oak and hickory uplands (including long-leaf pine ridge lands about 200 square miles), 400 square miles; first-class pine lands, 275 square miles; second- and third-class pine lands, 225 square miles.

Tilled lands: 104,857 acres.—Area planted in cotton, 42,988 acres; in corn, 43,745 acres; in oats, 3,193 acres; in rice, 41 acres; in sweet potatoes, 2,024 acres; in sugar-cane, 844 acres.

Cotton production: 9,562 bales; average cotton product per acre, 0.22 bale (short staple), 318 pounds seed-cotton, or 106 pounds cotton lint.

In geological structure Leon county resembles Gadsden. As compared with Gadsden, it has a rather more broken and uneven surface, and the level table-lands are here almost wanting.

In its general appearance the country about Tallahassee northward is the counterpart of much of the oak uplands of Georgia, Alabama, and Mississippi. A few miles southward of the capital, however, there is a descent into the low, flat pine woods, which, interspersed with hummocks and swamps, reach to the Gulf.

Of the soil varieties of Leon county three only need special mention: 1st, the red or brown clay loam lands, sometimes called oak and hickory hummocks; 2d, the light sandy pine lands; and, intermediate between these, 3d. A light clay loam of grayish color, with a growth chiefly of pine, forming the long-leaf pine uplands or ridge lands.

The most important soil is that of the red or brown clay loam lands, which form about one-half the cultivated area of the county. The principal trees are species of oak, with hickory and short-leaf pine. Near the lakes other hard woods are associated with these. This soil is a clay loam of gray, brown, and mulatto colors, changing at an average depth of 6 inches to the subsoil, which is heavier, more clayey, and of a dark red color on the better lands and yellow in the poorer spots. Underneath this are beds of sand and gravel 25 to 50 feet in depth, resting upon a substratum of limestone, which, however, is rarely seen except in the southern parts of the county. As usual where the drift beds overlying the limestone are very thick the inequalities produced by sinks in the latter rock are shown on the surface as large depressions filled with water, constituting lakes and ponds. In this way the region characterized by lime-sinks differs from that in which lakes are the distinctive features, the country rock being in the latter case deeply covered with drifted or transported materials, which in the former case have been partially removed by denudation, leaving the limestone bare, or, at most, covered by only a few feet thickness of sand or loam.

The upland pine woods or pine ridge lands are next in importance to the loam uplands. The soil, which is of a gray to mahogany color, rests upon a subsoil of somewhat heavier material, often a red clay loam, quite hard, and sometimes of a yellow color. Beneath this is a joint clay at depths of 8 to 15 feet.

ABSTRACT OF REPORT OF JOHN BRADFORD, OF TALLAHASSEE.

The red or brown loam soil and that of the pine ridge lands are both easily tilled, early, and warm, and are well adapted to corn, cotton, etc.; but about one-half the cleared land in both cases is in cotton, which attains a height of 3 to 4 feet, being most productive at 3 feet. When left too thick, and when the seed is not frequently changed, the plant shows a tendency to run to weed, which tendency may be checked by allowing proper distance between the plants, by bringing in new seed from the upcountry (Georgia and South Carolina) and sometimes by topping.

The seed-cotton product upon the fresh land (red clay loam uplands) is 1,000 to 1,500 pounds (after twenty years' cultivation, unmanured, 400 to 600 pounds); on the pine lands, from 800 to 1,000 (after fifteen years, unmanured, 600 to 800 pounds); and from 1,545 to 1,780 pounds in either case are needed to make a 475-pound bale. Crab-grass everywhere, and beggar-weed in some places, are the most troublesome weeds.

From 10 to 15 per cent. of the land now lies turned out, but the soils are rapidly recuperated after a few years' rest, when grazing is not allowed upon them. When taken again into cultivation they yield well the first year and better the second.

Except upon the flat or nearly level highlands considerable injury is done by washes and gullies, but the lowlands are frequently improved. To check this removal of soil from the uplands horizontalizing and hillside ditching have been tried with good success.

The third variety of soil, constituting what is known as the sandy pine lands (second and third classes), is of very little importance in cotton cultivation. It is found in spots all over the county, making nearly one-fourth of the area. The natural growth is almost exclusively long-leaf pine. The soil is light sandy, of a whitish gray color, and 5 to 6 inches deep to where the change of color is noticed. The subsoil is usually slightly heavier than the surface soil, being a yellowish-colored sand, underlaid with sand for several feet. It is easily tilled, but in places is boggy in wet seasons. No cotton is planted with profit upon this soil, which is best suited to sweet potatoes. This soil does not wash so readily as those having more clay in their composition, probably for the reason that the water is rapidly absorbed and does not collect and run off on the surface. The washings from the sandy uplands injure the lowlands by covering them with sand. The poor quality of the soil makes it scarcely worth while to practice horizontalizing or hillside ditching.

Cotton is shipped as fast as baled, by rail and steamer, to New York. The freight is about $1 20 per hundred to that port.

JEFFERSON.

Population: 16,065.—White, 3,397; colored, 12,668.

Area: 560 square miles.—Woodland, 520 square miles; oak uplands, 200 square miles; long-leaf pine uplands, 150 square miles; flat pine lands, 100 square miles; swamp and hummock lands, 70 square miles; coast marshes, 40 square miles.

Tilled lands: 104,350 acres.—Area planted in cotton, 37,500 acres; in corn, 39,059 acres; in oats, 3,949 acres; in rice, 22 acres; in sweet potatoes, 987 acres; in sugar-cane, 537 acres.

Cotton production: 10,368 bales; average cotton product per acre, 0.28 bale (short staple chiefly), 399 pounds seed-cotton, or 133 pounds cotton lint.

Jefferson county embraces every variety of soil, from the oak uplands to the coast flats.

From the Georgia line southward for 20 miles or more the face of the country is broken and hilly. The soil on these uplands varies from a light sandy to a dark stiff loam, and the subsoil in most cases is a pretty stiff red clay loam, which, however, at times, is too far below the surface to exercise an appreciable effect upon the soil. In such cases the growth is pine and black-jack; but where the soil becomes stiffer other trees, oaks and hickories chiefly, are added, and upon the best lands the oak and hickory growth prevails.

South of the uplands the country slopes gradually toward the Gulf. Some of this area is known as flatwoods, and on the borders of these lowlands and on some of the streams are the usual rich hummocks.

In the northern part of the county the thick beds of red sand and loam hide completely the underlying limestone, which extends, on the south, even several miles out to sea in very shoal water, the rock under this shoal water supporting a rich growth of aquatic grasses. The Massasaugea sinks are a few miles southeast of Micosakie lake, and into them the waters of the lake with several other streams discharge, and together plunge into the earth (Williams).

Between the uplands and the sea-shore intervenes a belt of flat lands, timbered with long-leaf pine and having a sandy soil. Where this soil is marled by mingling with the disintegrated calcareous rock it acquires a high degree of fertility and supports a growth of oaks and other hard woods. These places are called Gulf hummocks.

In places the limestone occasionally appears in outcrops, either through the sandy soils or around the edges of big springs or in the banks of streams.

ABSTRACT OF REPORTS OF JAMES F. TUCKER, OF MONTICELLO, AND J. P. GRANTHAM, OF WAUKEENAH.

These reports relate to the country drained by the Aucilla river, and describe soils of the pine ridge lands, oak and hickory uplands, hummocks, and flatwoods, or third-class pine lands. Of these the most important is the soil of the oak and hickory uplands, closely associated with which are the gray hummock lands. The latter, though of no great extent superficially, are thought to yield more cotton to the acre than any other kind. These two varieties make up probably three-fourths of the cultivated land in the northern part of the county, but a smaller portion farther south, where the pine lands prevail. The natural growth is hickory, species of oak, and short-leaf pine chiefly, with ash, beech, holly, red bay, gum, dogwood, and other trees in different localities. The lighter soils are fine sandy loams; the heavier, stiff clay loams, of a variety of colors, from white or gray, through yellowish, mulatto, orange, and brown, to nearly black. Between 2 and 6 inches a change of color is generally seen. The subsoil is usually a stiff red clay, inclined to hard-pan, standing well both wet and dry weather. In other cases the subsoil is lighter, soft, and easily worked. It contains frequently beds of rounded quartz pebbles, and where this is the case commercial fertilizers do well. Beneath the subsoil, at varying depths, from 10 to 100 feet, is found the limestone of the country. These soils are usually easily tilled, but the stiffer varieties are occasionally a little difficult of cultivation in wet seasons. They appear to be equally well suited to all the southern crops. Cotton, however, is planted upon at least 60 per cent of the cultivated loam lands, the chief drawback being the caterpillar, which invariably makes its appearance. The stalk attains a height of from 2 to 6 feet (on stronger lands still greater), being most productive at 5 feet.

The causes which tend to make the plant run to weed on these and the following soils are rich and fresh land, wet seasons, too heavy application of manures, and the attacks of the boll-worm, when they cause shedding of the fruit. Topping in July, light cultivation, and dry weather restrain this tendency and favor bolling, and allowing plenty of room will also act favorably in this respect. An average of 1,500 pounds of seed-cotton per acre is usually taken as the yield of the fresh land when the damage from caterpillars is insignificant. It requires about 1,660 pounds of seed-cotton for a 475-pound bale, and the staple (short) rates from middling to middling fair. After six

to ten years' cultivation without fertilizers the yield will be from 500 to 1,000 pounds, according to season and proportion of injury done by caterpillars. The staple on old land is not so good as that from fresh, rating as low middling or good ordinary. If well handled, however, there is not much difference in the staples from new and from old lands.

These lands suffer much from washes and gullies. The injury to the valleys from washings of the uplands varies greatly, and in some instances the soil appears to be lost entirely, and sand covers the bottoms, much to their detriment. In other cases the bottoms receive the cream of the upland soils, which are, *pari passu*, injured. Horizontalizing and hillside ditching are both practiced, usually the former, and, where properly done, with a fair degree of success.

The long-leaf pine lands occupy probably three-quarters of the entire county. The areas held by these lands may be subdivided into the pine uplands, or ridge lands, and the flatwoods.

Upland pine woods (ridge lands) occur in irregular bodies over all the county, except toward the coast, and occupy, in general terms, the higher lands, separating areas of oak uplands. The natural growth is long-leaf pine, with scrub oak occasionally, and with wire-grass below. Associated with these in low places are cypress, etc. The surface soil is sandy, coarse or fine, and generally of a whitish or grayish color. This material is often 1 to 3 feet in depth, and below it there is frequently a red or yellow clay, mixed with sand, and sometimes with gravel. Beneath this, at varying depths, occurs the limestone.

On these lands cotton forms perhaps two-fifths of the cultivated crops, the stalk attaining a height, when most productive, of 3 feet. On fresh land from 600 to 1,000 pounds of seed-cotton per acre may be obtained, the sample rating as middling and low middling. After six years' cultivation without manure the yield falls to 300 or 400 pounds with slightly deteriorated staple. About 1,660 pounds of seed-cotton are required in either case for a 475-pound bale. Much of these uplands suffer from washes, and usually the valleys are greatly injured by the sands which are washed down upon them. Where horizontalizing and hillside ditching are properly practiced, this evil may be in a great measure counteracted.

The flatwoods, as the name indicates, are level or gently undulating lands, supporting a growth of long-leaf pine, black-jack, scrub oak, saw palmetto, etc. The soil is sandy, of gray, brown, and mahogany colors, here and there alternating with white sand. There is often no change in the character of the material until the universally underlying limestone is reached. It is easily tilled, except when covered with water in wet seasons, and in this area are found all varieties of early, late, warm, and cold soils, according to locality.

The flatwoods are the natural pastures and timber lands, much of their area being occupied by cattlemen for a short time and then abandoned. Sea-island cotton is planted over a small proportion of the flatwoods, and in some places also the upland variety. The fresh land will produce sometimes 300 or 400 pounds of seed-cotton to the acre, but it is not profitably cultivated without manure for any great length of time. The staple from this land rates about middling; that from long cultivated land is not so good. There is no injury from washes, as the land is flat. Very little of the land formerly cultivated in the oak uplands, pine lands, or flatwoods lies turned out, less now than formerly.

All these soils, when allowed to rest, recuperate rapidly. It is necessary, however, to keep cattle off while the land is lying out, or it will deteriorate still further. Crab-grass, sand spurs, beggar-lice, coffee-weeds, and cocklebur are everywhere most troublesome weeds.

Cotton is shipped as fast as ginned, from October to January, by rail, usually to Savannah, Georgia. The rate of freight is 75 cents per hundred pounds, or $3 50 to $4 a bale.

MADISON.

Population: 14,798.—White, 5,609; colored, 9,189.

Area: 850 square miles.—Woodland, all. Oak uplands, 250 square miles; swamp and hummock lands, 175 square miles; pine lands, 425 square miles.

Tilled lands: 83,962 acres.—Area planted in cotton, 28,982 acres; in corn, 33,493 acres; in oats, 5,894 acres; in rice, 77 acres; in sweet potatoes, 889 acres; in sugar-cane, 573 acres.

Cotton production: 7,054 bales; average cotton product per acre, 0.24 bale (short staple chiefly), 348 pounds seed-cotton, or 116 pounds cotton lint.

The general topographical features of Madison county may be presented in a few words. Its western boundary is the Aucilla river; the eastern is formed by the Withlacoochee and Suwannee rivers. The highest land east and west lies, therefore, between these two drainage slopes, and there is also a gradual descent from the Georgia line southward. On the east the Withlacoochee and Suwannee rivers have cut through the surface materials down into the underlying limestones. On the west the thick beds of drift and loam have not been so deeply eroded by the Aucilla, and the indications of limestone are less apparent there. Between these two borders lie the undulating uplands.

The common classification of lands in Madison county is into pine lands, hummocks, and swamp, with intermediate varieties; and the distribution in general is: in the north and east, pine lands; south and west, hummocks.

The oak uplands, with red loam subsoil, which form so conspicuous a feature of the northern parts of Leon and Jefferson counties, occupy the western half of Madison county; thence eastward to the Withlacoochee and Suwannee rivers, and beyond into the western part of Hamilton and northwestern part of Suwannee county, the surface soil is more sandy, and the prevailing timber is long-leaf pine. Much of these high pine lands with sandy subsoils has a substratum of red or yellow clay loam, and therefore belongs to the class of pine uplands or ridge lands always associated with the oak lands.

Upon the red uplands the short-staple cotton is generally cultivated, as it is also to a great extent upon the upland pine lands; but the sea-island variety also succeeds well upon the latter.

South of the limit of the red or brown loam the land is generally rather low and flat, with a growth of pine and scrub oak, and in places of gallberry bushes. These lands constitute the flatwoods, which, for reasons already given, are seldom brought into cultivation.

Beginning in the lower part of Madison county and extending to the Gulf is an extensive and as yet unutilized area of almost impenetrable swamp land.

There is no prairie or savanna land in the county. For corresponding soils the abstracts given under Jefferson, on the one hand, and Hamilton, on the other, will convey a fairly correct idea of the capabilities of the soils of Madison.

Shipments from Madison are generally to Savannah, Georgia, at about 75 cents per hundred pounds.

II. LONG-LEAF PINE REGION.

Comprising, in western Florida: Parts of Escambia, Santa Rosa, Walton, Washington, Holmes, Jackson,* and Calhoun. In middle and eastern Florida: Parts of Liberty, Wakulla, Leon,* Jefferson,* Madison,* Taylor, all of Suwannee, parts of Hamilton, Columbia, Baker, Bradford, Nassau, Duval, Saint John's, and Clay. On the peninsula: Part of Putnam, all of Alachua, parts of Lafayette and Levy, all of Marion, parts of Volusia and Orange, all of Sumter, and parts of Hernando, Hillsborough, Polk, and Brevard.*

ESCAMBIA.

Population: 12,156.—White, 6,854; colored, 5,302.

Area: 720 square miles.—Woodland, all. Pine lands, 560 square miles, of which about 150 square miles are pine flats; swamp lands, 75 square miles; pitch-pine flats, 85 square miles.

Tilled lands: 1,298 acres.—Area planted in cotton, 25 acres; in corn, 602 acres; in oats, 132 acres; in rice, 68 acres; in sweet potatoes, 164 acres; in sugar-cane, 12 acres.

Cotton production: 10 bales; average cotton product per acre, 0.40 bale (short staple), 570 pounds seed-cotton, or 190 pounds cotton lint.

The surface soil in Escambia county is generally sandy, with a substratum of clay of various colors—white, yellow, red, and blue. Near the Escambia river there are many occurrences of a dark-brown ferruginous sandstone, formed by the drift sand, cemented by iron. The soil being generally siliceous, supports a growth of long-leaf pine chiefly, with wire-grass. Near the streams are occasionally productive hummocks. Between Pensacola bay and Santa Rosa sound the peninsula is said to have a stratum of peat beneath the surface sands, and in this peat abundant cypress and cedar stumps (Williams' *View of West Florida*, 1827, p. 7). The clays are worked into excellent bricks.

In its surface configuration this county shows a general slope from north to south, and from the center toward the Perdido river on the west and toward the Escambia on the east. These highlands are timbered with pine, and form good grazing grounds. The northern part is uneven and in places hilly, the sandy soil resting upon red clay subsoil.

Cotton is generally shipped via Pensacola to New Orleans, 75 cents a bale being the usual rate of freight.

SANTA ROSA.

Population: 6,645.—White, 4,773; colored, 1,872.

Area: 1,260 square miles.—Woodland, all. Pine lands, 1,060 square miles, of which about 210 square miles are pine flats; swamp lands, 160 square miles; coast lands, 40 square miles.

Tilled lands; 1,804 acres.—Area planted in cotton, 17 acres; in corn, 1,135 acres; in oats, 60 acres; in rice, 169 acres; in sweet potatoes, 158 acres; in sugar-cane, 43 acres.

Cotton production: 5 bales; average cotton product per acre, 0.29 bale (short staple), 420 pounds seed-cotton, or 140 pounds cotton lint.

Between the Escambia and Blackwater rivers is a tract of land with a sandy clay subsoil, known as Pine Level, which is perhaps one of the best parts of Santa Rosa county agriculturally, since most of the southern crops do well upon it. Between Blackwater and Yellow Water rivers are pine ridges, with sandy soil, usually rather poor.

The peninsula between Escambia bay and Yellow Water bay is generally covered with pine and black-jack oaks, with some moist savannas and a few hummocks (Williams). The same character of land is found on the peninsula between Pensacola bay and Santa Rosa sound.

The bottom lands of the Escambia river are said to be quite rich, but being subject to overflow are not much in cultivation. Along Pensacola bay and the other bays with which this county is indented are many spots of good hummock land.

The soil on the uplands is mostly sandy, and of gray mulatto and brownish colors. The subsoil is in many instances sandy also, but occasionally is of reddish or yellowish clay.

Beside the extensive pine uplands there are numerous gallberry flats and titi swamps.

The bottoms of the Blackwater and the Yellow Water rivers afford a grayish sandy soil.

In surface configuration Santa Rosa county shows a general slope southward from the Alabama line, the uplands being sandy, with long-leaf pine. Very little cotton is planted in the county, as the soil is better adapted to other crops, such as corn, rice, sugar-cane, and particularly to sweet potatoes. The principal occupation of the inhabitants is the cutting and shipping of pine timber.

ABSTRACT FROM REPORT OF DR. JOHN M. M'GEHEE, OF MILTON.

The soil is at all times easy of cultivation, early, warm, and well drained. The cotton stalk is most productive at a height of about 3 feet, but shows a tendency to run to weed in wet seasons and when growing on loose soil. Application of manure stimulates the plant to early fruiting and prevents running to weed. The seed-cotton product per acre of the fresh land is from 400 to 600 pounds, about 1,780 pounds being needed to make a 475-pound bale. Cotton has been cultivated in this county too short a time to furnish other data of importance. Florida clover is considered the most troublesome weed. When lands are reclaimed after lying turned out for three or four years they are about as productive as when fresh, especially where cattle have not been allowed to graze upon them. From the general character of the soil, its porous, absorbent nature, and the favorable, nearly level position of the lands, comparatively little injury is experienced from washes and gullies.

Shipments of cotton are made via Pensacola by steamer or sail-boat to New Orleans, and the usual rate of freight is 75 cents a bale.

WALTON.

Population: 4,201.—White, 3,685; colored, 516.

Area: 1,360 square miles.—Woodland, all. Oak uplands, 75 square miles; pine lands, 1,110 square miles, of which 250 square miles are pine flats; marshes, 100 square miles; swamp, 75 square miles.

Tilled lands: 9,373 acres.—Area planted in cotton, 1,437 acres; in corn, 6,025 acres; in oats, 1,091 acres; in rice, 120 acres; in sweet potatoes, 304 acres; in sugar-cane, 153 acres.

Cotton production: 382 bales; average cotton product per acre, 0.27 bale (short staple), 378 pounds seed-cotton, or 126 pounds cotton lint.

A line of sand-hills running approximately east and west, though near the center of Walton county, divides the waters which flow southward into Choctawhatchee bay from those which fall into Shoal creek on the north. This ridge is more than 30 miles long, is generally sandy, and the ferruginous sandstone of the stratified drift covers many of its high points. Toward the north and south its sides are steep and cut up into deep ravines; toward the west it slopes off gradually into low pine barrens; toward the east, however, it subsides in a series of detached peaks or hills, among which are the headwaters of Shoal, Alaqua, and Euchee creeks (Williams). Northwest of these hills the country is generally undulating, with sandy soil, and is covered with a growth of long-leaf pine and wire-grass, rising gradually toward the Alabama line.

Along Yellow Water creek, near the northern part of the county, are tracts of very good land, not confined to the immediate vicinity of the river, but extending out for several miles.

The sand-hills above mentioned may be looked upon as marking nearly the southern limit of the high lands, for below them the country slopes off gradually toward the Gulf.

Limestone appears to underlie the whole county, but it comes to light only near the eastern edge, where it has been laid bare by the waters of White creek, and in the Euchee valley; but the presence of this rock elsewhere is suggested by the circumstance that Alaqua, Twin, Boggy, and Rock creeks, which rise at the foot of the sand-hills above named, receive the waters and increase their volumes rapidly from several large springs, "some of which are large enough to turn mills at their source" (Williams' *View of West Florida*, 1827, p. 21).

Upon the substratum of limestone there have been deposited beds of sand and loam, which increase in thickness toward the Alabama line. The upper beds are usually more or less sandy, and where these are thickest the country presents the usual characters of the pine barrens, viz, open pine woods, with ponds and lakes interspersed. McDavid's lake, or Lake View, as it is now called, one of the largest of these bodies of water, lies partly in this county and partly in Alabama, and is 3 miles long by 1½ miles wide. The land on its borders has a clayey subsoil and produces well. Pond creek connects this lake with Shoal creek and Yellow Water river.

In the sand-hill region below Shoal creek there are also several ponds of considerable size, situated in the open pine woods. In all this part of the county the drainage has not cut down through the sand, but eastward and southward the waters flowing into Choctawhatchee river and bay have removed much of the superficial sands and brought to light the underlying red loams, and in some cases the limestone itself.

Along Alaqua creek there are areas of hilly country with a fertile soil and a red clay subsoil. Similar tracts are found in the Euchee valley. This land seems in many respects to resemble the red lands of Jackson county, which have resulted from the intermixture of the limestone or marl with the loamy surface soil.

The presence of lime in the subsoil and in the substratum of rock underlying the eastern part of this and the western part of Washington county is sufficiently well indicated in the prevalence of spruce pine in the bottoms near the Choctawhatchee river and in the abundance of fresh-water shells in most of the streams.

Near the Choctawhatchee river, southeast of Euchee Anna, in the Mushy bend, the land has a heavy, loamy soil, with a red clay subsoil, and in places a marl beneath. This river has in this county a wide bottom or swamp, which is very rich and productive, but is not much cultivated because of its liability to be overflowed. West of the bend above named is a comparatively high, sandy country, very poor, but covered with a dense carpet of wire-grass, and therefore an excellent grazing region during the summer time.

In the southern part of the county, near Choctawhatchee bay, are several large swamps. Toward the coast the soil is sandy and barren.

As a general summary it may be asserted that about one-third of the county is good tillable upland and hummock, the rest being the poorer qualities of pine lands, barrens, and swamp.

Cotton is shipped from some parts of the county by water to New Orleans; from other parts by rail to New Orleans and other markets.

WASHINGTON.

Population: 4,089.—White, 3,171; colored, 918.

Area: 1,330 square miles.—Woodland, all. Pine lands, 950 square miles, of which 250 square miles are pine flats; oak uplands, 50 square miles; swamp hummock and coast lands, 330 square miles.

Tilled lands: 12,063 acres.—Area planted in cotton, 1,877 acres; in corn, 5,809 acres; in oats, 565 acres; in rice, 84 acres; in sweet potatoes, 325 acres; in sugar-cane, 131 acres.

Cotton production: 602 bales; average cotton product per acre, 0.32 bale (short staple), 456 pounds seed-cotton, or 152 pounds cotton lint.

The greater part of Washington county is made up of pine lands, yet all gradations between the fertile red clay or loamy soils and those of the pine barrens are met with.

The brown or red loam uplands, which constitute the fine farming lands of southern Georgia and Alabama, terminate north of the center of this county in a series of hills elevated some hundred feet or more above the contiguous country. These hills, the best known of which are Orange hill, Oak hill, Mossy hill, and Wind hill, have each a fertile soil resting upon a stiff red clay subsoil, and support a native growth, consisting of hickory and varieties of oak chiefly, with which are associated short-leaf pine. From the sides of these hills rise numerous springs, which constitute the headwaters of Hard Labor and Dry creeks and the Econfina river. These hills are separated from each other by valleys of sterile pine lands and gallberry flats.

One of the most remarkable areas in the county is Holmes valley, which begins at the foot of Moss hill (the most western of those above named) and extends in a southwestern direction for about 15 miles. This valley is from 1 to 3 miles wide, and is parallel with Holmes creek, from which it is separated by a sandy, open pine flatwoods country from 3 to 5 miles wide. On the south of the valley there are high sandy hills, running its whole length. The soil upon these is very poor, and the growth consists of forked-leaf black-jacks and a few stunted pines. The valley itself is about 100 feet below the general level of the surrounding country. The soil appears to be chiefly a rich vegetable mold, several feet thick, underlaid with red clay, having occasional streaks of blue. By many the valley is thought to be an ancient lake bottom, a view which the peculiar character, great depth, and fertility of the soil appear to bear out. As an instance of this fertility, a farm which has been in cultivation for thirty-five years without manure yielded, in 1880, 12 bales of cotton on 13 acres. The soil shows no evidence of an unusual percentage of lime, but the spruce pine, a lime-loving tree, prevails along the Choctawhatchee river lowlands as far up as Vernon. The native growth in Holmes valley is white, black, red, and water oaks, white ash, black gum, wild cherry, red bay, magnolia, and a variety of shrubs (Williams).

Below the mouth of Holmes creek is the Big spring of the Choctawhatchee, the most noted of the big springs of this section. The stream running off from it has 6 feet depth of water, and the spring itself was formerly a well-known landing-place (Williams).

In the northeastern part of the county, within the drainage area of Holmes creek, the underlying limestone is often either laid bare or has only a thin covering of soil, and here the usual lime-sinks are often seen. Some of these sunken areas are quite dry, and are cultivated. as the soil is often fertile. The limestone is soft, and when freshly quarried can be hewn or sawed readily into blocks, which are used for building purposes, especially in the construction of chimneys.

Beyond the red clay hills above mentioned the country slopes away toward the south, and where the overlying sands have been partially removed by denudation the limestone beneath, thus brought near the surface, often exerts a beneficial influence upon the soil. The limestone lands of the Econfina river, well known for their fertility, are produced in this way.

The southeastern part of the county consists generally of high pine hills, covered with a deep white sand, upon which are the usual ponds and lakes. In the southwestern part the land is generally somewhat lower, but is covered with sand and interspersed with ponds and lakes.

Good hummock lands are found along the borders of Choctawhatchee bay, also along the northern borders of the main body and the eastern arm of Saint Andrew's bay. The lands north of this arm of the bay are clayey, and, although covered with pine timber, are capable of successful cultivation (Williams). Substantially the same varieties of soil are cultivated as in Jackson county.

The lack of facilities for transportation standing greatly in the way of the prosperity of Washington county, cotton is hauled in wagons from many parts of the county to Marianna, in Jackson county, and sold to local dealers.

HOLMES.

Population: 2,170.—White, 2,043; colored, 127.

Area: 540 square miles.—Woodland, all. Pine lands, 440 square miles; swamp lands, 100 square miles.

Tilled lands: 12,662 acres.—Area planted in cotton, 1,137 acres; in corn, 4,273 acres; in oats, 761 acres; in rice, 120 acres; in sweet potatoes, 135 acres; in sugar-cane, 74 acres.

Cotton production: 273 bales; average cotton product per acre, 0.24 bale (short staple), 342 pounds seed-cotton, or 114 pounds cotton lint.

The underlying rock in Holmes county is the usual white limestone. As is the case throughout Florida, this rock is covered to considerable depths by drifted material, here chiefly sand. The limestone is everywhere cavernous and much eroded, and the roofs of these caverns falling in produce lime-sinks. Where a great thickness of sand overlies these sinks the depressions are filled with water, constituting the ponds and lakes, which are, therefore, generally found upon the ridges or where the drifted materials are in greatest thickness. Where drainage waters have removed partly or entirely the sands, the underlying limestone lies often near the surface, being sometimes entirely bare, and the underground waters, filling many of the channels in the rock, break out as big springs, which flow away to the nearest water-course by open streams, often of size sufficiently great to float small steamboats. With these general principles in view, the topography of the county and the distribution of the agricultural regions are easily described. The Choctawhatchee river, flowing from north to south, divides the county nearly equally. The two halves are, however, very unlike each other in soil and productions. West of the river there is much diversity; on the east the country is generally poor pine uplands. Euchee and Sandy creeks flow into the Choctawhatchee on the west, while Holmes creek, rising in Geneva county, Alabama, forms the eastern boundary of Holmes county, and falls into the Choctawhatchee river below the southern limit of the county. West of the river, where the drainage seems to have cut deepest, the limestone often makes its appearance on the surface, and several of the big springs above alluded to feed the river from the same side. The high land lying between the water-courses, formed of a great thickness of sand and occasional pebble beds, supports a growth of the long-leaf pine, and its gently undulating surface is diversified by ponds and lakes and slight depressions, not filled with water, except during wet seasons.

The red clay or loam, which underlies so generally the soils of the counties east of this, is here comparatively seldom seen, the subsoil being usually sandy like the soil.

Hummock lands are met with in the low places along some of the streams, and are generally cultivated.

The high pine lands furnish excellent pastures for cattle, and the pine timber is carried down the Choctawhatchee river, which is navigable up to Geneva, in Alabama.

Cotton is hauled to Marianna and other markets outside the county limits.

JACKSON.

(See under "Oak, hickory, and pine upland region".)

CALHOUN.

Population: 1,580.—White, 1,184; colored, 396.

Area: 1,160 square miles.—Woodland, 980 square miles; pine lands, 775 square miles; swamp lands, 170 square miles; oak and hickory uplands, 35 square miles; marsh, 180 square miles.

Tilled lands: 3,453 acres.—Area planted in cotton, 721 acres; in corn, 1,643 acres; in oats, 391 acres; in rice, 75 acres; in sweet potatoes, 173 acres; in sugar-cane, 52 acres.

Cotton production: 172 bales; average cotton product per acre, 0.24 bale (short staple), 339 pounds seed-cotton, or 113 pounds cotton lint.

The northern part of Calhoun county is hilly and broken, the southern low and flat, and limestone underlies the whole area at varying depths. Upon the divides, especially in the northern half of the county, the limestone is covered to a great depth beneath the drifted materials, and here we find the usual ponds and lakes. Near the water-courses the sands have been more or less completely removed, leaving the underlying formation near the surface, giving occasion to the occurrence of lime-sinks and big springs. The banks of the Apalachicola river in Calhoun county as far south as Iola are in great part bluffs of this limestone, which is in places a good shell marl, suitable for fertilizing purposes.

West of Iola are the Dead lakes, sunken areas with dead cypress forests standing submerged to depths of 10 to 20 feet. This would indicate that the sinking which formed the basins of the lakes is of comparatively recent date, and it is generally thought that subsidence is still in progress, from the fact that a young growth of cypress is gradually spreading outward from the margins of the lakes.

South and west of the Dead lakes Calhoun county is low, flat, and marshy or swampy, the pine flats being overgrown chiefly with the Cuban or pitch pine.

The red clay hills which mark the southern limit of the uplands in this, as in Washington county, are found as far south as the base-line running east and west through Tallahassee.

In the character of soil and production of cotton Jackson county, elsewhere described, especially in its northern parts, has much in common with this county.

The Apalachicola river is the only way of outlet for the products of Calhoun county.

LIBERTY.

Population: 1,362.—White, 814; colored, 548.

Area: 800 square miles.—Woodland, all. Oak uplands, 200 square miles; pine lands, 315 square miles; flatwoods, 250 square miles; swamps, 35 square miles.

Tilled lands: 3,630 acres.—Area planted in cotton, 734 acres; in corn, 2,202 acres; in oats, 621 acres; in rice, 71 acres; in sweet potatoes, 128 acres; in sugar-cane, 59 acres.

Cotton production: 197 bales; average cotton product per acre, 0.27 bale (short staple chiefly), 381 pounds seed-cotton, or 127 pounds cotton lint.

The sandy table-lands of Gadsden county, with their growth of long-leaf pine and wire-grass, extend southward into Liberty county for some distance, gradually merging, below the central part of the county, into an almost uninhabited region some 20 to 30 miles square. This section is interspersed with ponds, fringed with almost impenetrable shrubbery, and the flatwoods between the little creeks are covered with saw palmetto, wire-grass, and other grasses, which furnish the best pasturage for cattle.

Bordering upon the Apalachicola river is a strip with a red clay subsoil, but back a short distance from the river are high lands, on which the sand covers deeply the red clay.

Marl beds, which are outcrops of the underlying limestone, make their appearance at the surface wherever the drainage has cut deep enough. This occurs in many places near the Apalachicola river, and also in the eastern part of the county, near the Ocklockonnee river, while between the two wells sunk to a depth of 15 to 20 feet below the surface nearly always reach a marl.

Occasional small limestone springs break up from the ground, but the underlying rock, especially in the northern part of the county, and in parts of Gadsden also, appears to be rather compact; a white, amorphous, earthy, calcareous mass, which breaks with conchoidal fracture, and being of quite uniform texture, is not readily worn into caverns and inequalities by the solvent action of the waters. In the southern part of the county it seems probable that the limestone is of a different nature, more like that which is seen near the coast in Wakulla county eastward.

The description of Gadsden county, where the characters of the soil and varieties common to the two counties are given, will supply further details.

The Apalachicola river and the Jacksonville, Pensacola and Mobile railroad are the two principal routes by which shipments of cotton are made.

WAKULLA.

Population: 2,723.—White, 1,563; colored, 1,160.

Area: 580 square miles.—Woodland, 480 square miles; coast marshes, 100 square miles; pine lands, 380 square miles; swamps and hummocks, 100 square miles.

Tilled lands: 13,678 acres.—Area planted in cotton, 2,311 acres; in corn, 6,871 acres; in oats, 554 acres; in rice, 37 acres; in sweet potatoes, 134 acres; in sugar-cane, 108 acres.

Cotton production: 561 bales; average cotton product per acre, 0.24 bale (chiefly long staple), 340 pounds seed-cotton, or 85 pounds cotton lint.

Wakulla county lies entirely upon what we have called above the Gulf slope. Its surface rises gradually toward the north, being nowhere very much elevated above tide, and, while generally level, there is still sufficient inequality of surface to secure thorough drainage.

The limestone in this county is always near the surface, and although the soil is in great measure composed of sand, yet, by reason of intermixtures with the marl or disintegrated limestone, it shows all grades of fertility, from sandy pine barrens to the richest hummocks.

The prevailing growth over the county is the long-leaf pine, which upon the hummocks is replaced by oaks, hickories, and other hard woods.

Near the coast for 4 or 5 miles the land is low and marshy, with spots of firm land covered with live oak, and rising a few feet above the general level.

The water off the coast is shallow for several miles out, the bottom being formed of limestone.

Within 8 or 10 miles of the coast are found the "Gulf hummocks", which owe their fertility to the intermingling with the sandy soil of a finely-pulverized chalky variety of the limestone, which serves as a natural marl. A specimen of this marl was collected a few miles north of Saint Mark's (see analysis in general part under head of "Cotton production").

Upon some of the land of this character the soil, while having the appearance of being nothing but sand, shows remarkable fertility, a bale of cotton to the acre being often the yield. The sea-island variety is principally cultivated.

Wakulla county possesses soils of nearly all the varieties found in Florida: Pine lands of the several grades; large hummocks, with a dense growth of white oak, hickory, magnolia, sweet gum, cherry, white ash, red bay, and, in the low hummocks, spruce pine, cedar, and cabbage palmetto; swamp lands, with growth of cypress, black gum, tupelo, poplar, maple, etc.

Many of the fine hummock lands once in cultivation are now abandoned, not because they are worn out, but because of changes in the system of farming, caused by the war.

The manufacture of salt was once an important industry here, and it is still kept up to some extent.

The Tallahassee and Saint Mark's railroad provides means of transportation. Cotton is shipped by rail to the markets of Charleston and Savannah.

LEON.

(See under "Oak, hickory, and pine upland region".)

JEFFERSON.

(See under "Oak, hickory, and pine upland region".)

MADISON.

(See under "Oak, hickory, and pine upland region".)

TAYLOR.

Population: 2,279.—White, 2,114; colored, 165.

Area: 1,080 square miles.—Woodland, 880 square miles; coast marshes, etc., 200 square miles; pine lands, 630 square miles, of which 450 square miles are flatwoods; swamps and hummocks, 250 square miles.

Tilled lands: 8,742 acres.—Area planted in cotton, 1,993 acres; in corn, 5,224 acres; in oats, 835 acres; in rice, 40 acres; in sweet potatoes, 224 acres; in sugar-cane, 124 acres.

Cotton production: 418 bales; average cotton product per acre, 0.21 bale (sea island), 292 pounds seed-cotton, or 73 pounds cotton lint.

In the northern and eastern parts of Taylor county the underlying lime rock often has over it a considerable thickness of sand and loam, but toward the coast these materials thin down, and the rock often outcrops through the sands. Eight or nine miles from the shore a low rocky ridge runs parallel with the coast, causing ripples and falls in all the streams that empty into the bay east of the Wakulla (Williams).

The best known of the various mineral springs are the sulphur and iron springs on the Econfina, a chalybeate spring on Blue creek, and Hampton springs (sulphur) on Rocky creek.

Along the coast are found areas of Gulf hummock land, produced as in Wakulla county.

Near the coast lie large bodies of "flatwoods", third-class pine lands, with gallberry flats, growth of saw palmetto, etc., seldom brought into cultivation, but affording fine pasturage. Stock-raising has, until comparatively recent times, been one of the chief occupations of the inhabitants.

Hummock lands are also met with farther inland along the water-courses, Oklockonnee, Fenhalloway, Warrior, and Steinhatchee rivers.

In the northeastern part of the county, adjoining Madison, and in various other localities, are considerable bodies of swamp land, as yet unimproved.

The uplands, or rather the lands intermediate between flatwoods and uplands, constitute the first, second, and third class pine lands.

The sea-island or long-staple cotton is almost exclusively cultivated in this county.

ABSTRACT OF REPORT OF JOHN B. CARRIN, OF STEPHENSVILLE.

These answers relate to the lowlands in the first and second bottoms of Beven's creek, and of Steinhatchee river, flowing into Deadman's bay, and also to the uplands adjacent to Blue Border and Dallas creeks, tributaries of the Steinhatchee.

The uplands vary greatly, being found in patches of from 1 to 20 acres, some being dark brown, and known as chincapin land, and this is considered the best for sea-island cotton, the only variety cultivated.

The lowlands are not so well suited to cotton, being generally too wet, which causes the plant to rust or shed its fruit, or both. The three principal varieties of soil will be considered in turn.

1st. *Dark gray, sometimes nearly black, sandy pine-chincapin land.*—This occupies about 20 per cent. of the whole area, or 40 per cent. of the uplands. The natural growth upon it is long-leaf or yellow pine, white oak, chincapin, saw palmetto, wire-grass, etc. The soil is fine sandy, of a gray-brown to blackish color, alternating or mixed. At an average depth of 5 inches the color changes to that of the subsoil. The subsoil varies; sometimes it is light-colored fine sand, very compact; sometimes a hard-pan, very hard, almost black, and composed of sand and what seems to be loam. This subsoil frequently contains fragments of limestone holding sea-shells, and the whole is

underlaid at varying depths of from 5 to 10 feet by the limestone, which is usually rather soft. This land is sometimes a little difficult to cultivate in wet seasons, but it is usually quite easy. In this vicinity corn, sugar-cane, sea-island cotton, oats, peanuts, peas, and sweet potatoes are the usual crops. This soil is best suited to cotton, oats, and potatoes; 10 per cent. of the cultivated land being in cotton, which attains a height of 6 or 8 feet, being most productive at 6. The fresh land will produce 500 pounds of seed-cotton to the acre, 1,575 pounds being required to make a 350-pound bale, and sells at 35 cents a pound. After three years' cultivation (unmanured) the yield is 400 pounds, of same quality and about the same yield of lint.

2d. *High-hummock land.*—About 15 per cent. of the uplands, or 30 per cent. of the whole area, is of this kind. The natural growth consists of species of oak, hickory, magnolia, bay, sweet bay, cabbage palmetto, pine, cedar, elm, linden, etc. The soil is a fine sandy loam, of brown, reddish, and blackish colors, varying in thickness from 8 to 12 inches. The subsoil varies, being sometimes sand, but most of these lands are underlaid either with marl or lime-rock at different depths. The subsoil often contains fragments of the limestone inclosing sea-shells. The cultivation is usually easy; the soil is better adapted to corn and sugar-cane, only 2 or 3 per cent. being planted in cotton, which attains a height, when most productive, of about 4 feet. The fresh land will sometimes yield 400 pounds of seed-cotton, falling to 300 pounds after three years' cultivation. From 1,665 on fresh to 1,750 pounds on long-cultivated land are required to make a 350-pound bale, and the usual price is 34 cents a pound; on old land the staple is slightly inferior.

3d. *Black-jack ridges or sandy pine lands.*—This variety makes about 30 per cent. of the whole area, or 15 per cent. of the uplands. The natural growth is long-leaf pine, black-jack oak, and wire-grass. The soil is fine and sandy, of a gray to whitish color, changing at 3 to 4 inches depth to a lighter sand, sometimes yellow, sometimes white, which constitutes the subsoil. In these areas the lime rock lies deep below the surface, and is seldom reached. The soil is best adapted to peas, peanuts, and sweet potatoes, and not more than 2 to 3 per cent. is planted in cotton. The stalk grows to the height of 2½ feet. Two hundred pounds per acre is the average seed-cotton product on fresh land, and 1,750 pounds are required to make a 350-pound bale, and sells at 35 cents a pound. After three years' cultivation without manure the yield is 100 pounds an acre. When the cotton is planted late or upon fresh land it often shows a tendency to run to weed. Application of stimulant manures and topping are the usual remedies. Upon all these soils crab and crow-foot grasses and sand spurs give most trouble to the farmer. None of these lands originally cultivated now lie turned out, and by reason of their generally level position there is no injury from washing and gullies.

Cotton is hauled from the different parts of the county to stations on the Jacksonville, Pensacola and Mobile railroad and sold to merchants; by them it is shipped thence by rail to Savannah, at the rate of about $3 per bale. Most of the shipments are made in December.

SUWANNEE.

Population: 7,161.—White, 4,021; colored, 3,140.

Area: 660 square miles.—Woodland, all. Pine lands, including barrens or flatwoods, 630 square miles; swamp lands, 30 square miles.

Tilled land: 37,590 acres.—Area planted in cotton, 7,288 acres; in corn, 12,410 acres; in oats, 2,132 acres; in rice, 154 acres; in sweet potatoes, 484 acres; in sugar-cane, 238 acres.

Cotton production: 1,177 bales; average cotton product per acre, 0.16 bale (sea island), 228 pounds seed-cotton (sea island), or 57 pounds cotton lint.

The highest land in Suwannee county is in the eastern central part, from which the drainage slopes incline toward the north, west, and south, the Suwannee, or one of its main branches, the Santa Fé, receiving all the waters.

This county shares with Hamilton and Madison, in part, the clay subsoil. The surface is diversified, being chiefly rolling pine lands, interspersed with low pine lands and palmetto and gallberry flats, called here "flatwoods". Near the Suwannee and other streams occasional hummocks are found.

The Suwannee river flows, in a part of its course, between banks of lime rock, and large springs break out in several places from its crevices.

Limestone is the underlying rock through the whole county, and exhibits several varieties, some of which are soft and easily cut when freshly quarried, and, as it hardens on exposure, it is used in some localities for building purposes. It is laid bare in many places where most of the superficial sands have been removed by denudation, especially near the Suwannee river.

ABSTRACT OF REPORTS FROM L. A. JENNINGS, OF LIVE OAK, AND GEORGE E. DEXTER, OF HOUSTON.

The soils may be divided into the following well-marked varieties, viz: 1st. Rolling or level pine uplands, with clay subsoil (first class); 2d. Gray or gravelly lands; 3d. Sandy pine lands (second class); and subordinated to these, 4th. Swamp and hummock lands, together with third-class pine lands and flatwoods.

1st. *Rolling pine uplands.*—This class of soil forms about one-third of the county, the prevailing growth being long-leaf pine, with oak and hickory added upon the uplands. The soil is as usual a sandy loam of whitish or gray-reddish to brown colors, underlaid with a sandy clay, occasionally with tough dark-colored clay, which is hard while the land is resting, but mellow after being broken up. This subsoil often contains concretions of bog-iron ore, and rests usually upon the limestone rock at depths of 5 to 8 feet. This land is of easy cultivation under nearly all circumstances. The soil is apparently best adapted to cotton (long staple), potatoes, and rice. One-half to three-quarters of the tillable land is put in cotton, which grows to a height of 4 to 9 feet, being most productive at about 4 feet. On the black pine lands, on fresh land, and when the seasons are too wet, the plant tends to run to weed. When this is the case, topping and late plowing are resorted to as remedies. The yield of seed-cotton per acre (sea island) on fresh land is put at about 500 pounds, about 1,315 pounds being required to make a 350-pound bale. The staple is rated as medium to good. After five to ten years' cultivation without manure the yield decreases from 250 to 400 pounds, according to quality of soil, it being in some localities much stronger than in others. The staple is then, perhaps, a little coarser, but not much different, and about the same quantity of seed-cotton is needed for a bale. Very little, if any, of this land has been abandoned. When the "turned-out" land has been reclaimed, it is said to yield at its best. Upon the rolling lands there is occasionally some injury from washes; on the more level areas, none.

2d. *Gray or gravelly lands.*—These make up two-fifths of the cultivated land in the vicinity of Houston, at least for 15 miles in each direction. The natural growth is hickory and white oak. The soil is coarse sandy, mixed with gravel, and is of gray to nearly black colors. The subsoil is somewhat heavier, containing coarse gravel and fragments of rock (probably limestone, perhaps flint), and is underlaid at 4 to 8 feet depth by the limestone rock of the country. Land of this kind is easily tilled, and the soil is warm, early, and well drained, being very well suited to the cultivation of sea-island cotton, which is the chief crop. The height attained by the stalk is 3 to 7

feet, it being most productive at 3 to 5 feet, and upon this soil it is never known to run to weed. The average seed-cotton product per acre on fresh land is given at 600 pounds, 1,300 or 1,400 pounds being required to make a 350-pound bale, the staple rating as good. After ten years' cultivation without manure the yield keeps up to 500 pounds, requiring 1,490 pounds of seed-cotton for a bale, the staple being very little, if at all, different from that of fresh land. With such exceptional strength it is not surprising that none of these lands have been turned out.

3d. *Second-class pine lands.*—These constitute perhaps one-sixth of the cultivated lands about Live Oak. The growth is almost exclusively long-leaf pine. The soil, fine and coarse sandy, is of usually light colors, sometimes inclined to reddish, and from 1 inch to 6 inches depth before its color changes to that of the subsoil. The subsoil is generally heavier than the soil, being a sandy clay, resting usually upon sand, the underlying rock being seldom seen. The land is, of course, always of easy tillage, and is warm and well drained. The usual crops are cotton, peas, and fruit—mostly grapes and oranges. Three-fourths of the land is put in cotton (long staple), which has an average height of 2½ to 3 feet, being most productive at 3 feet. It has no tendency to run to weed. Fresh land will yield 300 pounds of seed-cotton to the acre of medium staple, 1,050 pounds being required for a bale. Five years' cultivation without manures will bring down the yield to 150 pounds, but with no material difference in the ratio of lint or the quality of the fiber. Upon all the soils crab-grass, sand spurs, and hogweed give most trouble. There is no injury from washes on this and the preceding soil, since the surface is nearly level.

A third class of pine barrens (including "flatwoods") is prevalent in some parts of the county, but is comparatively little in cultivation; and a so-called black hummock land, timbered with bay, magnolia, white oak, ash, gum, etc., is cultivated in corn and rice, but not in cotton. This soil is a dark-gray to black, resting upon a tough black clay, which is easily worked after being once broken up. It contains fragments of the lime rock with which it is underlaid at a depth of 5 to 8 feet. In wet weather it is rather difficult to cultivate, but it is of easy cultivation in dry seasons.

Shipments of cotton are made from November to January by rail to Charleston, South Carolina, and Savannah, Georgia. The rate is 75 cents per hundred pounds.

HAMILTON.

Population: 6,790.—White, 4,472; colored, 2,318.

Area: 540 square miles.—Woodland, all. Pine lands, 340 square miles; swamp lands, 125 square miles; hummocks, 75 square miles.

Tilled lands: 39,731 acres.—Area planted in cotton, 11,680 acres; in corn, 14,991 acres; in oats, 2,570 acres; in rice, 225 acres; in sweet potatoes, 379 acres; in sugar-cane, 222 acres.

Cotton production: 1,908 bales; average cotton product per acre, 0.16 bale (chiefly sea island), 228 pounds seed-cotton, or 57 pounds cotton lint.

The surface of Hamilton county, though in general somewhat rolling, is in good part, especially in the northeast quarter, occupied by what are known as flatwoods or pine barrens.

The general drainage is southward from the Georgia line into the Suwannee river and its tributaries. The highest lands are west of the center of the county, and near the White Sulphur springs, in the southeast corner, adjacent to the Suwannee river.

Near the rivers which bound the county the drainage has cut down into the subjacent limestone, and occasional outcroppings of this rock may also be noticed 5 or 6 miles distant from these streams.

In many parts of the county a red or a yellow clay loam underlies the soil at varying depths, and while this county might, on this account, be classed in the agricultural division of the brown loam uplands, the oak uplands, so characteristic of the counties farther west, are almost entirely lacking here. On the other hand, much of the pine land has a substratum of the clay loam, like the pine uplands of Jefferson county, etc.

The soil over a large proportion of the county is sandy and rather light, and the principal varieties recognized are: 1st, rolling uplands, with dark loamy soil, and sandy subsoil resting upon red or yellow clay loam; 2d, sandy uplands, including pine barrens and flatwoods, the last two being similar in quality; 3d, hummocks; and 4th, swamps.

Upon some of the uplands the short-staple cotton is planted; but sea-island cotton makes about five-sixths (or more) of the crop, according to estimates of correspondents.

ABSTRACT OF REPORTS OF THOMAS N. BELL AND H. J. STEWART, OF JASPER.

The reports refer to the region drained by the Alapaha and Suwannee, and the soils described are those above enumerated.

1st. Rolling uplands, with growth of long-leaf pine, interspersed with red oak, hickory, etc. In the most fertile portions the oak and hickory prevail to the almost total exclusion of the pine. In this the first-class pine lands approach in quality the oak uplands. It is estimated that about one-sixth of the county near the water-courses possesses soil of this nature. The uplands vary considerably. Some are level pine barrens, others rolling. These latter, especially when red oak and hickory grow upon them to any extent, are productive, the valleys in particular. The soil is sandy, and generally of light colors; subsoil, a yellow or red clay, which rests upon lime-rock at varying depths. This kind of soil is well adapted to the upland or short-staple cotton, which is planted on at least a third of the cultivated land. The stalk attains a height of 3 or 4 feet. The seed-cotton product on fresh land is from 500 to 1,000 pounds (the latter in the bottoms and valleys), and from 1,660 to 1,900 pounds are required to make a 475-pound bale. After five years or more of cultivation (unmanured) the yield is brought down to 300 pounds. The staple from this worn land is usually not much inferior to that grown on fresh land. Only a small proportion of this kind of land lies turned out. When reclaimed, it produces about as well as originally. There is not much injury done by washes, and the valleys are, if anything, considerably benefited by the settling from the slopes. Some slight efforts have been made to stop the washings by horizontalizing and hillside ditching, and with good success where properly done.

2d. Flatwoods, including some of the pine barrens. These level lands cover over one-half of the county, and they have a natural growth of yellow pine, with an undergrowth of saw palmetto. Cypress ponds and gallberry flats are interpersed throughout this area. The soil is a fine sand of a grayish color, 3 or 4 inches thick before change of color; the subsoil is heavier, is of a yellow color, passing into clay usually at 4 feet depth. Tilling qualities of the land, generally easy. The usual crops are cultivated, viz, sea-island cotton, sweet potatoes, oats, sugar-cane, etc., the soil being apparently best adapted to cotton, which is planted on about one-third of the tilled land. The stalk often grows to 6 feet height, but observation has shown that it is most productive at about 5. Three causes tend to make the cotton run to weed, viz., not thinning out at proper time, improper cultivation, and too much wet weather. When wet weather is the cause, topping is the remedy suggested; when improper cultivation is to blame, the remedy is obvious. "If the hands are idle, hire a new set, or discharge

and hire over the same set." Five hundred pounds is taken as the average seed-cotton product per acre on fresh land, and 300 pounds after ten years' cultivation without manure. There is a slight difference in the staple in favor of the fresh land. In both cases about 1,400 pounds are needed to make a 350-pound bale. The cleared land is generally under cultivation, and very little of it is turned out, and from its level nature there is hardly any tendency to wash or gully. Crab-grass, dog-fennel, hogweed, and beggar-lice or Indian clover are most troublesome weeds upon all the soils.

3d. Some good bodies of hummock swamp lands are found in various parts of the county.

Shipments of cotton are made from September on, mostly to Savannah, Georgia, by rail, at $1 per bale.

COLUMBIA.

Population: 9,589.—White, 4,820; colored, 4,769.

Area: 860 square miles.—Woodland, all. Pine lands (including flatwoods), 635 square miles; swamp lands, 150 square miles; hummocks, 75 square miles.

Tilled land: 45,759 acres.—Area planted in cotton, 13,142 acres; in corn, 18,685 acres; in oats, 4,616 acres; in rice, 317 acres; in sweet potatoes, 687 acres; in sugar-cane, 297 acres.

Cotton production: 1,992 bales; average cotton product per acre, 0.15 bale (sea island), 212 pounds (sea-island) seed-cotton, or 53 pounds cotton lint.

Columbia county is in great part upon the elevated belt forming the water-shed between the Atlantic and the Gulf. The county slopes away from the high land of the northeastern and eastern parts toward the Suwannee river on the west and toward Olustee creek and Santa Fé river on the south.

The soils throughout the county are sandy, with the exceptions noticed below, and are underlaid with either a reddish or a yellowish clay loam, or with sands, according to locality.

The prevailing growth is long-leaf pine, with the usual first, second, and third class pine lands.

In the northeastern and eastern portions of the county, upon the dividing ridge, there is much flat land of second and third quality, with pine, saw palmetto, and wire-grass as natural growth, with numerous tracts of swamp and many lakes. Such lands, though flat and often covered with water, are not unhealthy. Where the land is more rolling a yellowish sandy soil frequently occupies a position between the uplands and the lowlands corresponding to the oak uplands farther west.

In addition to the pine lands and swamps there is in this county a fair proportion of hummock land. Where the drainage has thinned down the covering sands in the vicinity of the various water-courses the hummocks are of frequent occurrence. These, however, are not always confined to the vicinity of streams, but appear occasionally in the highest parts of the county. Lake City is said to be about 200 feet above the Atlantic, and in its vicinity flat pine lands, interspersed with swamps and lakes, prevail. The analysis of soil from near Lake City will show the composition of the better class of flat pine lands.

ABSTRACT OF REPORTS OF MESSRS. G. B. SMITHSON, OF LAKE CITY, AND T. R. COLLINS, OF MIKESVILLE.

The soils described are those of the pine lands and of the hummocks.

1st. *Light rolling sandy pine lands.*—These make three-fourths of the uplands, the growth being chiefly long-leaf pine. The soil is a fine sandy loam, gravelly in spots, of whitish to yellowish colors, averaging in depth 6 to 8 inches. The subsoil is usually heavier than the soil, being upon the hills a reddish clay or stiff loam, which mixes with and stiffens the soil, making it more difficult to cultivate, as it hardens upon exposure to the sun. Beneath the subsoil, at depths varying from 2 to 10 feet, is usually found the limestone of the country. The soil is easily tilled, and is early, if well drained. The principal crops are corn, sea-island cotton, sugar-cane, oats, potatoes, etc. Cotton, oats, and peas succeed best, other crops usually requiring fertilizers for their successful cultivation. Cotton makes usually about one-third of the crop, the stalk attaining a height of 4 to 5 feet, being most productive at about 4. Upon fresh land the seed-cotton product per acre is 400 to 500 pounds (1,400 pounds to a 350-pound bale), the staple rating as fair. After four years' cultivation without manure the product falls to 350 pounds, with slightly reduced percentage of lint, which does not rate quite so well (by 1 cent to 3 cents per pound) as that produced upon fresh land, but comes a week or two earlier. Being light, this soil washes badly on slopes, but the valleys are usually benefited to the extent of 10 or 15 per cent. by the washings from the uplands. Scarcely any efforts have been made to check the damage, but when horizontalizing has been tried it succeeds well.

2d. *Yellow sandy soil,* a little broken and usually lying between the uplands and the lowlands. This soil (which seems to correspond to the oak and hickory uplands of the western counties of middle Florida) occurs in limited patches of 30 to 50 acres, and makes perhaps 10 to 15 per cent. of the lands near Mikesville. The growth is long-leaf pine, with an undergrowth of scrub oak and hickory. The color is yellowish, and the depth 6 to 8 inches. The subsoil is mostly clay, sometimes a variety of the country rock, which has a very small proportion of lime, but a correspondingly large percentage of siliceous matter, and which is usually called sandstone. The clay is usually at the depth of 2 feet. These soils are easily tilled in dry seasons, but difficult—becoming boggy from bad drainage—in wet weather. Corn, cotton (sea island), and oats are the chief products, cotton forming 10 or 15 per cent. of the whole. The stalk grows to a height of 4 or 5 feet, being most productive at 4. The fresh land will bring 400 pounds of seed-cotton (one-fourth lint by weight) to the acre. The staple is rated as fair in good seasons, but it is liable to be stained, and thus injured, if it falls upon the ground. The land retains its fertility well. Much injury is caused by washes and gullies, and the valleys suffer from the sands washed from the uplands; yet almost no efforts have been made to check the damage.

3d. *Dark hummock land.*—This forms only a small proportion (one-tenth or less) of the arable land, being in patches of a mile or two in area. The natural growth is hickory, oak, red bay, cherry, gum, and magnolia. The soil is a light clay loam of a blackish or dark brown color, 12 or 14 inches deep, with dark clay, or, in places, a red clay subsoil, containing fragments of limestone full of shells. Beneath these lie sand and limestone rock at 2 to 4 feet depth. The soil is heavily timbered and difficult to clear, but is of easy tillage. In wet seasons it is unfit for cotton on account of bad drainage, but is well adapted to corn and sugar-cane. Cotton forms not more than one-tenth of the cultivated crop. The stalk grows to 6 or 7 feet in height, but is more productive at about 5. The seed-cotton product on fresh land is 400 to 600 pounds per acre (one-fourth lint), which rates as fair, but which is usually slightly inferior to that grown upon the uplands. The soil shows very little evidence of exhaustion after several years' cultivation without manures. No injury from washes or gullies. When planted late or upon fresh land, when plowed deep, or when the season is too wet, the plant shows a tendency to run to weed. Topping or shallow culture are resorted to as remedies. The most troublesome weeds are crab-grass, sand spurs, Jerusalem oak, hogweed, and

beggar-lice or Florida clover, the seeds of the latter mixing with the cotton when pulling it out of the boll. Some 10 or 15 per cent. of the cultivated lands in the rolling pine regions are usually turned out; upon the large farms sometimes even a larger proportion. Of the other varieties very little land originally cultivated now lies out. All varieties improve rapidly while resting, and when again taken into cultivation they produce as well as ever for a few years. The other varieties of soil, including flatwoods and swamp lands, are not much in cultivation.

Cotton is shipped by rail and by steamer, chiefly during the months of November and December, to Charleston and Savannah. The freight charge is about $2 a bale.

BAKER.

Population: 2,303.—White, 1,660; colored, 643.

Area: 500 square miles.—Woodland, all. Pine lands, including flatwoods, 375 square miles; swamp lands, 100 square miles; hummocks, 25 square miles.

Tilled lands: 4,898 acres.—Area planted in cotton, 1,107 acres; in corn, 2,388 acres; in oats, 484 acres; in rice, 59 acres; in sweet potatoes, 208 acres; in sugar-cane, 48 acres.

Cotton production: 215 bales; average cotton product per acre, 0.19 bale (sea island), 272 pounds seed-cotton, or 68 pounds cotton lint.

Baker county occupies the summit and eastern slope of the water-shed between the Atlantic and the Gulf. The drainage is chiefly into the Saint Mary's river.

The uniform thick covering of sandy material overlying the country limestone, and the frequent occurrence of low, swampy tracts, lakes, and ponds, with spots of hummock land where denudation has been most effective in partially removing the sands, thus bringing the lime-rock within reach of the soil, are characteristics of Baker county. Since the eastern slope of the divide, at least in northern Florida, has apparently suffered less degradation than the western the areas of high hummock land are comparatively few, and in some parts wanting entirely on the eastern side of this water-parting.

From these circumstances, as may be inferred, the surface of Baker county is flat or gently undulating, though in the western parts considerably elevated above the sea. The soil is almost uniformly sandy, and the growth long-leaf pine. The pine lands are principally of second and third quality. The second-class pine lands have a heavy growth of pine, which is a source of wealth in lumber and in turpentine and rosin. The third-class lands in this county, as in other parts of the state, have a growth of pine, saw palmetto, and gallberry bushes.

The northwestern parts of Baker county are interspersed with large areas of cypress swamp.

The abstract given under Columbia will apply quite well to similar soils in Baker. Sea-island cotton is chiefly cultivated.

In physical features and other respects there are many points of resemblance between Baker county and Bradford, Clay, and Duval counties on the one hand and Columbia on the other.

The cotton is usually shipped from November to January by railroad to the sea, and thence by steamer or sail-boat to Charleston and Savannah, the rates varying from $1 to $2 a bale.

BRADFORD.

Population: 6,112.—White, 4,822; colored, 1,290.

Area: 550 square miles.—Woodland, all. Pine lands, including flatwoods, 410 square miles; swamp land, 140 square miles.

Tilled lands: 22,440 acres.—Area planted in cotton, 5,836 acres; in corn, 9,511 acres; in oats, 2,119 acres; in rice, 143 acres; in sweet potatoes, 388 acres; in sugar-cane, 260 acres.

Cotton production: 1,094 bales; average cotton product per acre, 0.19 bale (sea island), 248 pounds seed-cotton, or 62 pounds cotton lint.

The surface of Bradford county is in general rather level, and the soil sandy. The eastern parts of the county, though presenting often the appearance of low pine barrens, have in reality considerable elevation above the sea. The following altitudes are taken from railroad surveys: Trail ridge, summit 210 feet; Lawtey, 140 feet; Starke, 150 feet; Santa Fé lake, 137 feet. This portion of the county is timbered mostly with long-leaf pine, and, in addition to the many lakes and ponds with which it is diversified, contains much swampy land. Pine lands of the description given above cover about four-fifths of the county, part being strong land (first class), with heavy growth of pines and some oak and hickory, and part being more sandy (second and third class), constituting the genuine pine barrens. New river traverses the county from north to south near the center, and along this stream the country is more broken, the underlying limestone occasionally making its appearance at the surface, or its influence being felt in the overlying soil. In the western part of the county, in the drainage area of Olustee creek, similar conditions hold. The sea-island cotton is the kind produced. The lumber trade is one of the chief sources of wealth.

Shipments as under Baker and Columbia, above.

NASSAU.

Population: 6,635.—White, 3,075; colored, 3,560.

Area: 640 square miles.—Woodland, 570 square miles; coast marshes, 70 square miles; pine lands, mostly flatwoods, 450 square miles; hummocks and swamp, 120 square miles.

Tilled lands: 4,554 acres.—Area planted in cotton, 195 acres; in corn, 2,559 acres; in oats, 294 acres; in rice, 14 acres; in sweet potatoes, 282 acres; in sugar-cane, 64 acres.

Cotton production: 53 bales; average cotton product per acre, 0.27 bale (sea island), 380 pounds seed-cotton, or 95 pounds cotton lint.

The larger proportion of Nassau county is made up of level, sandy pine barrens, averaging not more than 25 to 30 feet above sea-level. In the northwestern part these flatwoods are interspersed with the so-called "sand-hills", which furnish an upland sandy soil in the midst of pine barrens.

The clay bluffs along the Saint Mary's river have a soil which is capable of great improvement by the use of fertilizers, and which is well adapted to the production of fruit.

On the islands of the coast, and on the mainland, the soil is well suited to the long-staple cotton, which, however, at present forms a very small percentage of the agricultural products of the county.

In addition to the sandy soils above mentioned, which have in cases a substratum of clay and sometimes of marl, thus giving rise to great variety, there are along the coast large bodies of marsh land, which have been partially reclaimed, but are now generally lying idle, and along the tributaries of the Nassau river tracts of swamp land, which are yet to be drained and generally brought into cultivation.

Sea-island or long-staple cotton is the variety produced.

Cotton is shipped from the different ports to Savannah and Charleston.

DUVAL.

Population: 19,431.—White, 8,580; colored, 10,851.

Area: 900 square miles.—Woodland, 825 square miles; coast marshes, 75 square miles; pine lands, chiefly flatwoods, 725 square miles; swamps and hummocks, 100 square miles.

Tilled lands: 5,959 acres.—Area planted in cotton, 57 acres; in corn, 1,939 acres; in oats, 46 acres; in rice, 92 acres; in sweet potatoes, 476 acres; in sugar-cane, 121 acres.

Cotton production: 23 bales; average cotton product per acre, 0.40 bale (sea island), 564 pounds seed-cotton, or 141 pounds cotton lint.

Duval county, like Nassau, is generally rather low, the eastern part being flat and marshy, the western consisting in great part of low pine barrens. The elevation above the sea of the western part is about 50 feet. The soil is light sandy, interspersed with a few areas of hummock land. This soil, though light, does well with the use of fertilizers, and marls are easily obtained in all parts of the county.

Near the Saint John's river and many of its tributaries are bodies of swamp land yet to be brought under cultivation.

Shipments of cotton are made by water to Savannah and Charleston principally.

SAINT JOHN'S.

Population: 4,535.—White, 3,170; colored, 1,365.

Area: 1,000 square miles.—Woodland, 860 square miles; coast marshes, 140 square miles; pine lands, chiefly flatwoods, 610 square miles; swamps and hummocks, 250 square miles.

Tilled lands: 2,841 acres.—Area planted in cotton, 8 acres; in corn, 1,282 acres; in oats, 52 acres; in rice, 16 acres; in sweet potatoes, 273 acres; in sugar-cane, 149 acres.

Cotton production: 6 bales; average cotton product per acre, 0.75 bale (sea island), 1,052 pounds seed-cotton, or 263 pounds cotton lint.

The general surface of Saint John's county is low, flat, and in great part occupied by "scrub" pine barrens, with palmetto undergrowth. North of Saint Augustine a ridge of pine land 3 or 4 miles wide, extending from the north line to Saint Augustine, separates two good bodies of land. Although the hummocks are not extensive, yet the pine land, 5 or 6 miles from the river, has a good clay foundation, and produces excellent crops (Williams).

The small streams which flow into the Saint John's river and the Atlantic ocean have usually very good hummocks.

Shipments from Saint John's county are by steamer or sail-boat to the northern markets.

CLAY.

Population: 2,838.—White, 2,265; colored, 573.

Area: 640 square miles.—Woodland, all. Pine lands, 550 square miles; swamp lands, 70 square miles; hummocks, 20 square miles.

Tilled lands: 4,069 acres.—Area planted in cotton, 456 acres; in corn, 1,885 acres; in oats, 214 acres; in rice, 45 acres; in sweet potatoes, 146 acres; in sugar-cane, 74 acres.

Cotton production: 96 bales; average cotton product per acre, 0.21 bale (sea island), 296 pounds seed-cotton, or 74 pounds cotton lint.

Clay county shows considerable variety in its topographical and agricultural features. The western part, being a portion of Trail ridge, has an elevation of 150 to 200 feet above sea-level. This elevation becomes less toward the east, being only a few feet above tide in the part of the county adjoining Saint John's river. Upon the elevated country west and southwest are found many beautiful lakes, some of which have open outlets, and are thus the partial sources of Black creek. Of these the most important are Kingsley's, Blue, Fish, and Sand Hill lakes. The first named is by some considered to be the highest above sea-level of any of the Florida lakes. Its elevation is given at 171 feet. In addition to these there are numerous lakes and ponds which have no apparent outlet, though they are probably drained by subterranean channels. In the eastern part of the county water from these channels breaks forth in a great number of springs. Green Cove springs, Montmorenci, and Blue springs are well-known sulphur springs.

Along Black creek, where much of the overlying sands has been removed by denudation, the country rock, which is usually a limestone, appears on the surface.

ABSTRACT OF REPORTS OF MESSRS. L. D. WALL, OF WILDERNESS, AND O. BUDINGTON, OF MIDDLEBURG.

The chief varieties of soil are pine lands with clay subsoil, pine lands with sandy subsoil, and black and sandy hummocks. Of these only the light sandy soils with substratum of clay are used to any considerable extent in cotton cultivation.

Upon the lowlands the growth of the cotton is quite dependent upon the seasons. In dry weather the soil cakes hard and cracks, and the cotton, not being able to penetrate it, often dwindles and dies. On the other hand, in very wet weather it is liable to scald and rust, sheds its bolls, and is frequently killed by too much water. On high lands (both pine and hummock) it does better, these having mulatto soils, which the tap-root can penetrate.

Light sandy soil with clay subsoil.—This comprises over half of the lands about Wilderness and Middleburg. The natural timber is long-leaf pine, with species of oak and some hickory. The soil is a light sandy loam of a whitish gray to brown color, with an average depth of perhaps 10 inches. The subsoil is heavier than the soil, being principally clay. On high lands, where farming has been carried on for many years, this subsoil becomes a hard-pan; but beneath the subsoil the clay is found sometimes to a depth of 20 feet, resting upon the lime rock of the country, which, however, is not always visible. The soil is easily tilled under most circumstances, and the usual southern crops are cultivated, sea-island cotton being planted on from one-eighth to one-third of the cleared land. The height of stalk varies from 2 to 8 feet, according to the quality of the land, being most productive at about 5 feet. On the richer land, especially on low land, and when planted too thickly, the cotton inclines to run to weed, and the same tendency is noticed when wet if it is cultivated with a turn-plow. To check this tendency shallow plowing and good hoeing are recommended, and also planting 4 or 5 feet apart and leaving only one or two stalks in the hill. The average seed-cotton product upon fresh land may be given at 400 pounds per acre, from 1,300 to 1,400 pounds of seed-cotton being required to make a 350-pound bale. The staple is classed as first rate. After ten years' cultivation without manure the yield falls two-thirds, with a slightly reduced proportion of lint and slightly deteriorated staple. The ordinary grasses, sand spur, crab-grass, and certain weeds, such as beggar-lice, sheep burrs, Spanish needle, etc., give most trouble.

A considerable proportion of this land, amounting in places to one-half, lies turned out, but it recovers its fertility rapidly, and when taken again into cultivation produces nearly as well as originally. This soil washes badly on slopes, and, while the uplands are injured, the valleys are usually improved by the washings. Horizontalizing is sometimes practiced with very good success.

The other varieties of soil mentioned above are seldom planted in cotton. A considerable proportion even of the first-class pine lands still remains uncleared and uncultivated.

Shipments are made by rail and steamer, principally in November, to Savannah and Charleston, the rates varying from $2 to $3 a bale.

PUTNAM.

Population: 6,261.—White, 3,845; colored, 2,416.

Area: 860 square miles.—Woodland, all. Pine lands, 600 square miles; swamp lands, 225 square miles; hummocks, 35 square miles.

Tilled lands: 11,788 acres.—Area planted in cotton, 1,356 acres; in corn, 2,675 acres; in oats, 566 acres; in rice, 12 acres; in sweet potatoes, 467 acres; in sugar-cane, 109 acres.

Cotton production: 347 bales; average cotton product per acre, 0.26 bale (sea island), 360 pounds seed-cotton, or 90 pounds cotton lint.

In Putnam county the following three natural agricultural divisions may be distinguished, viz: The western part, the river bottoms, and the peninsula east of the Saint John's river.

The western part is principally undulating pine lands of varying quality, with a substratum in many places of blue and red clay. The surface rises gradually toward the west, being near that border 150 feet or more above the sea. The soils west of the river vary in quality according to locality. Near the river the pine lands are low and flat, valuable chiefly for timber and as a range for cattle.

The river bottom-lands are mostly low, and were originally covered with a growth of cypress and oaks, and wherever these are 6 feet above the river-level they are in cultivation, principally in oranges and other fruit. The swamps are still generally covered with their original growth.

A part of the west bank of the Saint John's river in this county is formed of a strip of hummock land, presenting a bold front to the river; otherwise the river is bordered by swamp land.

On the so-called Fruit-land peninsula, which lies between the Saint John's river, on the west, and Crescent lake, Dunn's lake, and Deep creek, on the east, the cultivation of the orange forms the principal occupation. This peninsula is from 1 to 5 miles wide between Deep creek and Dunn's lake, and as far south as Rolleston consists of a narrow strip of hummock land, running back into flat pine land, which is under water during the rainy season. At San Mateo the hummock land bordering the river is of greater width, and rises into rolling pine land a hundred feet or more above the level of the river.

Between Dunn's lake and the Saint John's river that portion of the peninsula belonging to Putnam county is about 25 miles in length and some 8 miles in width, and for the most part is rolling pine land, with some hummock land skirting the lake and river (Hon. E. R. Chadwick).

Near the river are frequent beds of marl, which form productive lands. These marl-beds appear to belong to a comparatively recent geological formation, and the same may be said of the beds of fresh-water shells, which in places form low bluffs on the banks of the river. Similar varieties of soil are described under Clay county.

Cotton is shipped from various points along the Saint John's river to Charleston and Savannah. The rates are usually from $1 to $1 50 a bale.

ALACHUA.

Population: 16,462.—White, 6,446; colored, 10,016.

Area: 1,260 square miles.—Woodland, all, except a few acres of prairie. Pine lands, 1,000 square miles; hummocks, 200 square miles; swamp land, 60 square miles.

Tilled lands: 49,731 acres.—Area planted in cotton, 14,646 acres; in corn, 19,246 acres; in oats, 1,006 acres; in rice, 73 acres; in sweet potatoes, 845 acres; in sugar-cane, 361 acres.

Cotton production: 2,519 bales; average cotton product per acre, 0.17 bale (sea island), 240 pounds seed-cotton, or 60 pounds cotton lint.

Alachua county embraces the following principal varieties of land, viz: Oak and hickory pine lands (first class), level or rolling pine lands (second and third class), hummocks, and prairie land. Of these the level pine lands greatly predominate, making perhaps two-thirds of the county.

The eastern part of the county is elevated some 250 feet above the Atlantic, sinking toward the west to 70 eet. Near the line between this and Levy county is a range of sand-hills 120 feet above tide where crossed by the Transit railroad between Archer and Bronson stations.

In the vicinity of the Santa Fé and Suwannee rivers, which form the northern and western boundaries, the mean elevation is perhaps less than 70 feet, and in these localities the limestone often outcrops, giving rise to

hummock lands of excellent quality and considerable extent. The Suwannee river flows in a large part of its course between limestone banks. Through the crevices in this rock many large springs break forth, the waters of which are often impregnated with sulphureted hydrogen.

Extending from northwest to southeast through Alachua is a strip of varying width, where the limestone is near the surface and is very thinly covered with soil. Along this belt are many areas of fine hummock land, supporting a growth of oaks, hickory, black and sweet gum, bay, magnolia, beech, maple, and other hard woods. The substratum of all the hammock lands, so far as observations go, is an earthy variety, much disintegrated, of the limestone above alluded to.

The hummocks are very irregularly distributed along this belt, usually in small detached bodies of 100 to 500 acres. San Felasco hummock, north of Gainesville, however, embraces many square miles.

An analysis of a typical soil of this class, from Ocala, in Marion county, has been given in the general part of this report, and from it the average character of the soil may be seen.

ABSTRACT OF REPORTS OF P. B. TURPIN, OF WALDO, AND WILLIAM H. ROBERTSON, OF GAINESVILLE.

The varieties of soil are included in the several classes of pine lands, and the hummocks with smaller areas of swamp and prairie.

The hummocks make perhaps a sixth of the area of the county, and sustain a growth of oak, hickory, bay, and magnolia. Two kinds are recognized, viz., the black hummock and the gray hummock or "mixed land".

The soil of the black hummocks is a fine sandy loam of a brown to blackish color, 10 to 12 inches deep, with sandy subsoil usually, though sometimes the latter is a brownish-yellow clay. This contains in places fragments of a soft sand rock. It is underlaid with sand, clay, or hard-pan at 6 to 8 feet depth.

The soil of the gray hummocks differs from the above in being more sandy and of a lighter color. Its subsoil is usually a coarse yellow sand, sometimes almost white, and, beneath this, sand, sand rock, or hard-pan at 4 to 6 feet depth. The gray hummocks have usually some long-leaf pine, along with the other trees characteristic of such land.

These soils are easy of tillage in all seasons. About one-half is planted in cotton, though they are thought to be rather better adapted to sugar-cane and rice. The yield of seed-cotton (sea island) will average 600 to 700 pounds to the acre, one-fourth of the weight being lint. The usual height of the stalk is 5 or 6 feet, being most productive at 5. None of these lands are turned out of cultivation.

Outside of the hummocks and prairies, which together form perhaps a little less than one-sixth of the superficial area of the county, the prevailing growth is the long-leaf pine, with wire-grass. The soils of the pine lands vary considerably in productive qualities, and these variations are sufficiently well characterized by the natural growth associated with the pines. Upon the poorer areas, where the soil is most sandy, long-leaf pine, with some scrub oak, prevails, to the almost total exclusion of other trees. Where the soil becomes more loamy, red oak and hickory are associated with the pines.

The great proportion of the cotton of this county is produced upon the better class of pine lands. The soils rest upon a yellowish sandy subsoil, and this often upon a clayey foundation. From one-third to one-half of the cultivated lands of this sort are planted in cotton (sea island), which attains a height of 3 to 6 feet, being most productive at about 5 feet. The seed-cotton product on fresh land is about 500 pounds to the acre, 1,400 to 1,480 pounds of the seed-cotton yielding a 350-pound bale of No. 1 staple. Five or six years' cultivation without manures brings down the yield to 200 or 400 pounds per acre, the fiber becoming shorter and coarser, 1,225 to 1,445 pounds of seed-cotton, however, yielding a bale. Probably one-third of this land lies turned out; when again taken into cultivation it produces very well the second and third years.

From the level or slightly-rolling character of most of the land in the county there is little or no injury from washes or gullies.

The troublesome weeds everywhere are crab and crow-foot grass, sand spurs, Jerusalem oak, careless-weed, and "beggar-weed" The latter, however, is not an unmitigated evil, as it makes an excellent pasturage for stock, and is supposed to add to the fertility of the soil.

In wet weather, and when the rows are too close or the fruit sheds, the plant will tend to run to weed. Planting early, giving plenty of room and applying small quantities of potash or bone-dust for manure, will check this tendency.

The Atlantic and Gulf and West India Transit railroad crosses this county from northeast to southwest, and affords means of transportation for the products of Alachua. Cotton is shipped by this road to the coast, and thence by steamer or sail-boat to Charleston and Savannah. Most of the shipments are made during November, the usual rate being from $2 50 to $3 a bale.

LAFAYETTE.

Population: 2,441.—White, 2,268; colored, 173.

Area: 940 square miles.—Woodland, 830 square miles; coast marshes, 110 square miles; pine lands, 410 square miles, of which 200 or more are flatwoods; swamps, 280 square miles; hummocks, 140 square miles.

Tilled lands: 7,962 acres.—Area planted in cotton, 472 acres; in corn, 3,420 acres; in oats, 351 acres; in rice, none; in sweet potatoes, 103 acres; in sugar-cane, 56 acres.

Cotton production: 107 bales; average cotton product per acre, 0.23 bale (sea island), 316 pounds seed-cotton, or 79 pounds cotton lint.

Lafayette county lies between the Steinhatchee river, on the west, and the Suwannee, on the east, on the north reaching up nearly into the brown loam or red clay uplands, from which it slopes away southward to the Gulf. In consequence of this position, most of the varieties of soil occurring in Florida are met with in Lafayette. The greater proportion of the area is, however, pine land, with sandy soil, interspersed with large tracts of hummock land, among the most important of which may be mentioned Cooke's, Old Town, and Clay hummocks, and smaller bodies of similar land near the Steinhatchee; in addition, there are some areas of Gulf hummock A not inconsiderable area is also occupied by swamps, which are situated near the center of the county and toward its southern and southeastern borders.

Some of the pine lands have a subsoil of red clay or loam, and in this respect they resemble similar lands in Suwannee and Madison counties.

The limestone in Lafayette county not only extends down to the coast, but continues out to sea for several miles, a small depth only below the water-level. In this shallow water there is a heavy growth of aquatic grasses,

and near the shore is often a low, rocky ridge, formed of the flinty portions of the limestone. Rapids or cascades are produced in all the principal streams as they cross this flinty mass.

The abstract given under Taylor county, adjoining this on the west, describes the composition and agricultural capabilities of similar soils.

The Suwannee river is navigable to New Troy, the county-seat, and the products of Lafayette find their way to market by this channel, or they are hauled to the railroads and thence shipped.

LEVY.

Population: 5,767.—White, 3,732; colored, 2,035.

Area: 940 square miles.—Woodland, 890 square miles; coast marshes, 50 square miles; pine lands, mostly flatwoods, 620 square miles; hummocks, 160 square miles; swamps, 110 square miles.

Tilled lands: 15,645 acres.—Area planted in cotton, 3,665 acres; in corn, 7,250 acres; in oats, 2,096 acres; in rice, none; in sweet potatoes, 365 acres; in sugar-cane, 292 acres.

Cotton production: 1,251 bales; average cotton product per acre, 0.34 bale (sea island), 476 pounds seed-cotton, or 119 pounds cotton lint.

In the northwestern part of Levy county is a range of sand-hills, which, at the point where the Fernandina and Cedar Keys railroad crosses, between Bronson and Archer stations, is 120 feet above the Gulf level. From this ridge to the Gulf is a low, flat country, covered with sand, through which at intervals the underlying limestone makes its appearance, giving rise to hummock lands.

In the southwestern part of the county an extensive Gulf hummock, 100,000 acres in extent, is formed on both sides of the Wakasassa river down nearly to the Withlacoochee. Along the Wakasassa and its tributaries these hummocks reach up some distance into the interior.

Where the drainage of the Suwannee river has cut down to the limestone there are also occasional patches of rich hammocks, and similarly in the vicinity of the Withlacoochee.

The soils of Levy county are the varieties of sandy to loamy pine lands and hummocks.

The general descriptions of the pine-land soils of Columbia and Marion counties, of the hummock soils of Marion and Sumter, and of the marl which underlies and mingles with the sands of the Gulf hummocks of Wakulla county are applicable to this county.

In physical features, soils, etc., Levy is closely allied to Taylor county.

Shipments are by rail to the seaports, and thence by water to Savannah or Charleston.

MARION.

Population: 13,046.—White, 4,741; colored, 8,305.

Area: 1,680 square miles.—Woodland, all. Pine lands, 1,140 square miles; hummocks, 400 square miles; swamp lands, 140 square miles.

Tilled lands: 50,160 acres.—Area planted in cotton, 13,305 acres; in corn, 16,641 acres; in oats, 1,793 acres; in rice, 71 acres; in sweet potatoes, 1,803 acres; in sugar-cane, 274 acres.

Cotton production: 2,426 bales; average cotton product per acre, 0.18 bale (sea island), 256 pounds seed-cotton, or 64 pounds cotton lint.

In its physical features Marion has a close resemblance to Alachua county. Diagonally through this county from northwest to southeast runs an elevated belt of land, covered generally with sand, but diversified with extensive tracts of rich hummocks. The prevailing limestone of Florida makes its appearance at the surface at intervals throughout the county, and the earthy disintegrated portions of this rock, mingling with the sandy soil, constitute the high hummocks. A variety of the country limestone is highly siliceous, and may often be seen outcropping in large masses through the sandy soil without exerting any beneficial effect upon it. Between Silver Spring and Ocala limestone of this kind can be seen in several places, especially where exposed in the tramway cuts. The rock which underlies the high hummock land just south of Ocala is of a very different nature, especially as regards its influence upon the soil.

The Ocklawaha river traverses Marion county from south to north. This river is bordered by a swamp for most of its length, except where in a few localities the hummocks extend down to the river banks. Most of the drainage is received into underground passages or into lakes, and comes to light again in the big springs which are found near the Ocklawaha river and the lakes of the Saint John's, on the one side, and the Withlacoochee, on the other.

The most noted of these springs are Silver spring, near Ocala, the waters of which flow off in a navigable stream 9 miles long to the Ocklawaha, and Blue spring, which flows in a similar way into the Withlacoochee, in the southwestern part of the county. Orange spring, in the northeastern part of the county, strongly impregnated with sulphur, was once a place of resort for invalids.

While the soil throughout Marion county is sandy, yet the influence of the underlying limestone is almost everywhere felt, so that there is very little barren land within its limits. The sands are in places underlaid with small pebbles, and occasionally with a clayey sand, bringing about a variety of modifications.

The chief soil varieties are: 1st. Oak and hickory pine lands (first class), with associated high or gray hummocks; 2d. Light sandy pine-hills soils and sandy hummocks; and 3d. Swamp lands near water-courses and other low, wet places.

An analysis of oak and hickory pine-land soil from this county 9 miles north of Ocala, and of the gray hummock soil 1 mile south of Ocala, will be found in the general part of this report. Also an analysis of the light hummock soil from Leesburg, in Sumter county. It is believed that these analyses will show fairly the composition of the average soils which they represent throughout the middle portion, at least, of the peninsula. The largest and most important bodies of hummock land in Marion county are Tuscawilla (in part), Wetumpka, Moody's, Sugar, Long Swamp, and Ocala. These hummocks collectively make a large area of extremely valuable and productive land.

ABSTRACT OF REPORT OF J. L. BINNICKER, OF FLEMINGTON.

The soils described are:

1. *Oak and hickory pine lands and gray hummocks.*—This class of land forms perhaps one-half of the cultivated lands of the county. The timber upon the hummocks embraces live oak, white oak, water oak, magnolia, and bay, and upon the rolling pine lands red and black oaks, with hickory, are associated with the long-leaf pine. The soil is a dark-colored sandy loam, approaching black on the hummocks, and has a depth of 1 foot; the subsoil is sometimes small gravel, mixed often with clayey sand and fragments of the disintegrated limestone. This limestone has also its flinty portions, which mingle with the other materials of the subsoil. The soil is always well drained, being underlaid everywhere by the cavernous limestone. In very wet weather it is a little difficult of cultivation, and in dry weather is somewhat liable to suffer from drought. It is very well adapted to most of the southern crops, especially to corn, sugar-cane, and sweet potatoes. Sea-island cotton is cultivated on about one-third of the cleared land, growing to a height of 5 feet, but is most productive at about 4 feet. On fresh land a yield of from 400 to 700 pounds of seed-cotton (one-fourth weight being lint) may be expected, the staple being first class. After four or five years' cultivation without manure the yield on the hummocks is reduced to 400 pounds, and that on the pine lands to less, the staples from the old land rating quite as well as that from the fresh. In some localities nearly one-half of these lands originally under cultivation now lie turned out. After being taken again into cultivation the soil will for a few years produce as well as when fresh.

2. *Light pine land and sandy hummocks.*—Nearly one-third of the land about Flemington is of this nature. The timber is long-leaf pine, with shrubby oaks, live oak, and scrub and saw palmetto in hummocks. The soil, always sandy, is of a whitish to brown color, and is often 2 feet deep, down to a clayey, sandy subsoil, which contains in places fragments of the flinty parts of the limestone. About one-fifth part of these lands is devoted to cotton culture. The average height of the stalk is from 2 to 2½ feet, and it is most productive at this height. The fresh land will yield 300 pounds of seed-cotton to the acre, a bale of 350 pounds requiring about 1,500 pounds of the seed-cotton. The staple rates from fair to good. Three or four years' cultivation without manure will bring down the yield to 200 pounds or less, but the quality of the staple will not be changed. These uplands are soon exhausted without manure, and for that reason large plantations, once cultivated, now lie turned out. It is not generally considered profitable to reclaim such land, as it hardly pays for the fencing. On all these soils wet weather and too deep plowing sometimes cause the plant to run to weed. Thorough drainage and stopping the cultivation prevent this tendency. Jerusalem oak, cocklebur, and sand spurs are the worst weeds, the latter especially. From the level or gently-undulating character of most of these lands and the porous nature of the soils the injury from washes is comparatively trifling.

3. Occasionally in small bodies, near lakes or water-courses, are low, swampy spots, overgrown with ti-ti, palmetto, and short-leaf pine. The soil is a blackish muck, 1 or 2 feet thick, underlaid with white sand, something like quicksand, below which is often a clay. This soil is of easy tillage only in dry seasons, and is well suited to the orange tree. Such areas make also fine pastures. Only about one-tenth of this land is devoted to cotton culture, the plant often running up to a height of 10 feet, but with very little fruit. As the land, by reason of its low situation, cannot be drained, there seems to be no way of preventing this running to weed, which is caused by too much moisture. One hundred and fifty pounds of seed-cotton to the acre are yielded by fresh land, and this yield remains about the same after several years' cultivation, as the land is not easily exhausted. The staple rates fair to good. One-half of the originally cultivated land lies now turned out. It produces as well as ever after a few years' rest.

Cotton is hauled either to the Transit railroad or its branches, or to the Ocklawaha river, and is thence shipped by rail, steamer, or sail boat to Charleston or Savannah. Most of the shipping is done in November and December, and the rate is about $1 a bale by the water route; a little more when sent by rail.

VOLUSIA.

Population: 3,294.—White, 2,756; colored, 538.

Area: 1,340 square miles.—Woodland, 1,140 square miles; prairies and savannas, 200 square miles; pine lands, 740 square miles; swamp, 200 square miles; hummock, 200 square miles.

Tilled lands: 4,044 acres.—Area planted in cotton, 330 acres; in corn, 1,250 acres; in oats, 40 acres; in rice, 2 acres; in sweet potatoes, 508 acres; in sugar-cane, 57 acres.

Cotton production: 62 bales; average cotton product per acre, 0.19 bale (sea island), 264 pounds seed-cotton, or 66 pounds cotton lint.

A belt of tolerably high rolling pine lands, varying in width from 2 to 7 miles, extends centrally southward about 30 miles from the northern boundary of Volusia county. East of these pine lands is a belt of prairie extending the entire length of the county, affording fine pasturage for stock. East of the prairie belt, and occupying the lands on the west banks of the Halifax and Hillsborough lagoons, are rich hummocks.

Westward and southward from the pine belt follow rolling pine barrens, and then the lowlands, hummocks, and savannas of the Saint John's river. With this great variety in its physical features Volusia county shows a corresponding variety in its soils and productions. The hummocks have been cultivated chiefly in sugar-cane, as the high natural marling in these areas seems to cause the cotton to go too much to weed. The prairies and savannas are natural pastures, seldom cultivated. The pine lands are best suited to cotton. In these the soil is always sandy, in places somewhat loamy, and is occasionally mingled with calcareous matter. The face of the country is diversified with the usual abundance of lakes and ponds, and springs are numerous throughout the county.

ABSTRACT OF REPORT OF D. J. M'BRIDE, OF VOLUSIA.

The soil is sandy, and is of a whitish gray to brown color, according to locality, changing in color at perhaps 4 inches depth. The subsoil varies, being in some places heavier, and in others lighter, than the surface soil, and bringing about corresponding variations in the character of the land. It is always easily tilled, and produces good crops of corn, sugar-cane, cotton, sweet potatoes, etc. Only a small proportion of the land is planted in cotton, the sea-island variety being exclusively cultivated. The average height of the stalk when most productive is about 5 feet. The plant is inclined to run to weed when the soil is too rich or when forced too fast in spring. The remedy is to keep back the growth by "flat weeding".

The average seed-cotton product per acre of fresh land is about 500 pounds, and about 1,480 pounds are needed to make a 350-pound bale. This sells at from 30 to 35 cents per pound. After three years' cultivation without manure there seems to be no falling off in the yield, but after six or eight years it comes down to 300 or 400 pounds, of about the same proportion of lint and seed, but with slightly improved staple, as it sells better than that from fresh land by about 1 to 2 cents a pound. Crab-grass and sand spurs are the troublesome weeds on sandy land, while beggar-lice give most trouble on the hummocks. None of the originally-cultivated land is turned out, as it is all planted in orange groves. The country is so nearly level or so slightly undulating that no injury is sustained from washes.

Shipments of cotton are made in December and January, chiefly by the Saint John's river, etc., to Charleston and Savannah. The freight charge to these ports is $1 50 a bale.

ORANGE.

Population: 6,618.—White, 5,595; colored, 1,023.

Area: 2,250 square miles.—Woodland, 2,035 square miles; marsh, 75 square miles; prairie and savanna, 140 square miles; pine lands, 1,675 square miles; swamp, 220 square miles; hummock, 140 square miles.

Tilled lands: 11,762 acres.—Area planted in cotton, 818 acres; in corn, 2,763 acres; in oats, 140 acres; in rice, 8 acres; in sweet potatoes, 663 acres; in sugar-cane, 202 acres.

Cotton production: 143 bales; average cotton product per acre, 0.17 bale (sea island), 244 pounds seed-cotton, or 61 pounds cotton lint.

In the lake region, in the west of Orange county, the country is high and undulating, the hills on the borders of some of the lakes rising to a height of 70 feet above water-level. Eastward the land is more nearly level or gently undulating.

The soils are the usual varieties common in southern Florida, viz, rolling pine lands, better class, with sandy soil, underlaid by a loam which rests upon clay or marl. The prevailing timber upon such lands is long-leaf pine and red and black oaks, and occasionally hickory. The pines are large and of sturdy growth, and make the very best lumber. A second-class pine land has little else in the way of timber than pines, except in places a small growth of oaks. A third class of pine lands is seen in the fine pine barrens, with small pine, wire grass, and saw palmetto. Such lands, though occupying frequently high levels, are often half submerged during the rainy seasons. Hummock lands are found on the borders of the lakes and water-courses, as lake Apopka, Tohopekaliga, Jessup, and adjoining some of the swamps of the Saint John's in the northern part of the county. Around the swamps of the Wekiva and near the center of the county east and west are other bodies of hummock land of considerable extent.

The limestone underlying this county is not, as is the case in the middle and western counties, altogether of Vicksburg age, but in one place certainly, and probably along a belt of considerable width parallel with the Saint John's and 12 to 15 miles distant from it, the underlying limestone is of the Miocene or Middle Tertiary age.

Upon the high pine lands, where great thickness of sands overlie the country rock, lakes of all sizes and in great numbers are seen. In the lower levels, where the drainage has removed a part of the sands, the limestone sometimes outcrops in bold bluffs, as at Rock spring, Hoosier spring, and Clay spring, or it merely lies near the surface, influencing the surface soil and producing the hummocks.

Near the river at still lower levels occur in places swamps of considerable size, and along the river in the southeast a large area of prairie or savanna land, which supports always a luxuriant growth of grasses, forming the best natural pasture grounds.

The abstracts of the reports from Sumter and Marion counties will apply almost equally well here, and the analyses of the oak and hickory pine-land soil north of Ocala, of the dark-gray hummock land at Ocala, and of the light hummock land at Leesburg, will show fairly the composition of similar soils in Orange county. The low flat pine barrens soil here is in all respects similar to that of Columbia county north of Lake City, analysis of which is given in the general part of this report.

Railroads from lake Monroe and Astor, on the Saint John's river, to Orlando and fort Mason provide transportation from the interior of the county to that river.

Shipments are made from the above and other points on the Saint John's by boat to Savannah and Charleston at from $1 to $1 50 per bale.

SUMTER.

Population: 4,686.—White, 3,501; colored, 1,185.

Area: 1,380 square miles.—Woodland, all, except a few small areas of prairie. Pine lands, 1,000 square miles; hummocks, 130 square miles; swamps, 250 square miles.

Tilled lands: 14,550 acres.—Area planted in cotton, 2,527 acres; in corn, 6,909 acres; in oats, 627 acres; in sweet potatoes, 398 acres; in sugar-cane, 237 acres.

Cotton production: 419 bales; average cotton product per acre, 0.17 bale (sea island), 232 pounds seed-cotton, or 58 pounds cotton lint.

Sumter county, although resembling Marion in many particulars, differs from it in having a much larger proportion of lowlands and a greater number of lakes. In this respect it forms a transition to Orange county, south of it. From Dr. E. B. Miles, of Fort Mason, we get the following description of the "Florida mountains":

The highest land in the county lies west of lake Apopka. These highlands (called sand-hills by the natives) extend from the country lying between lakes Eustis and Apopka southward to the headwaters of Davenport creek, which empties into lake Tohopekaliga, and thence through the Kissimee river into lake Okeechobee. These are, therefore, probably the highest lands in the lower part of the state, as the waters in the valleys flow southward, as above indicated, into lake Okeechobee, and through the Palatkaaha creek and the great lakes Apopka, Harris, Dora, Eustis, and Griffin northward through the Ocklawaha river. In going southward, the first and most notable of these peaks is Table mountain (so called from its flat top). A mile or two further south are two more elevations still greater—Mount Sumter and Prospect mountain; and beyond these, Mount Hudson, with the most abrupt ascent of all. Its eastern side is so steep that it cannot be climbed directly. With this exception, these mountains have gentle ascents, and their broad summits and sloping sides are covered with a growth of pines and wire-grass.

In the northern and western parts of the county there are large bodies of fine hummocks similar to those of Marion, and in the southern part there is much low and often swampy land, alternating with prairies or savannas, dotted with numerous lakes. The cultivation of cotton (sea island) in Sumter county has not yet reached large proportions, though much of the land is well suited to this crop. Fruit culture has heretofore been one of the chief pursuits of the inhabitants.

The usual varieties of soil described under Marion and Alachua counties are also represented in this county. These are: First, oak and hickory pine lands (first class), with soil of a dark-brown color and somewhat loamy; second, high rolling pine lands (second class), with sandy soil; and third, light-gray or sandy hummock soil, the latter being usually associated with sandy pine lands. The dark-gray hummocks occur in the western and northwestern

parts of the county, and are in all respects similar to those of Marion, of which they are the continuation. The analysis of a soil of this character from Marion county is given in the general part, where the dark gray hummock south of Ocala has been described. The dark-brown loamy soils are similar to that described and analyzed from the uplands north of Ocala.

The subsoil of the light gray hummock near Leesburg below the depth of 1 or 1½ feet is a light yellow, nearly white sand, and below this a yellowish clayey sand, which is used sometimes in brick-making. The bricks are quite friable, however, and are useful only for light work, such as furnaces for sugar-boiling.

The clay or loam which underlies the stiff, heavy hummocks, such as have been described under Marion county, is of a darker color, and less sandy than is the case with the under-clay of the light hummocks.

ABSTRACT OF REPORT OF GEORGE M. LEE, OF LEESBURG.

In the neighborhood of Leesburg two-thirds of the land is pine land, with sandy soil, mostly of a light or grayish color, the associated hummocks having darker-colored soil, still quite sandy. This hummock soil is usually said to have a clayey subsoil, but the proportion of clayey matter is quite small. Upon the highlands the timber is mostly long-leaf pine, with an undergrowth of oak bushes and wire-grass. In the hummocks are live oak, water oak, hickory, red bay, and evergreen, with saw palmetto as an undergrowth. The soils of the pine lands and of the light hummocks are always of easy tillage, and are usually well drained. The ordinary southern crops all do well; about one-fourth the land cultivated is now planted in cotton (sea island). In wet seasons the plant shows a tendency to run to weed. On fresh pine land the yield of seed-cotton per acre is 300 to 400 pounds; on the hummocks, 400 to 800 pounds, according to quality. For a 350-pound bale 1,400 pounds of seed-cotton are usually required. With cultivation for several years without manures the yield is diminished one-third or more, and the staple is not considered so good. Sand spurs and careless-weed are considered most troublesome to the farmer. A small proportion only of this land originally cultivated is now turned out; but this, upon being reclaimed, produces nearly as well as fresh land for a few years, gradually falling off after that time. No injury is caused by washes, as the land lies comparatively well, and the sands absorb quickly the rains which fall upon them. The swamp lands of Sumter are, as a general thing, unreclaimed. The third-class pine lands, of which there is a considerable proportion, are not planted in cotton. Shipments are made by boat on the lakes and the Ocklawaha river to the seaports, and thence by steamer and sail-boat to Charleston and Savannah. The rates vary from $1 to $2 a bale.

HERNANDO.

Population: 4,248.—White, 3,319; colored, 929.

Area: 1,700 square miles.—Woodland, 1,540 square miles; pine land, 1,340 square miles; hummocks, 100 square miles; swamps, 100 square miles; prairie, 80 square miles; sea marsh, 80 square miles.

Tilled lands: 14,691 acres.—Area planted in cotton, 1,558 acres; in corn, 10,883 acres; in oats, 1,371 acres; in rice, 88 acres; in sweet potatoes, 619 acres; in sugar-cane, 383 acres.

Cotton production: 468 bales; average cotton product per acre, 0.30 bale (sea island), 420 pounds seed-cotton, or 105 pounds cotton lint.

Hernando in its topography and soils shows a greater variety, perhaps, than any other county on the peninsula.

From the Withlacoochee, on the north, to Brooksville there is a high, hilly country, with a subsoil of yellowish sandy clay or loam, possessing in general excellent soil, interspersed, however, with spots of poor pine land.

Near Brooksville are two of the largest bodies of hummock land in the state, known as the Annuttelaga and Choccochattie hummocks. In each of these are found high hills and a variety of soils, all, however, highly productive and well suited to most crops.

In the eastern part of the county and along the Withlacoochee river are other excellent hummocks, with some prairie and savanna land. Westward toward the Gulf the lands as a class are level flatwoods, interspersed with Gulf hummocks near the coast. In this region Mount Lee, near the head of Homosassa river, rises to a height of 214 feet, according to the statement of Captain Reynolds; and according to the same authority other hills in the county have an elevation of 170 feet.

South of the Withlacoochee, near the coast, is a large tract of swamp land eight or ten miles in length and three or four in width. The growth upon the high hummocks above mentioned consists of white, water, and live oaks, hickory, red bay, magnolia, ash, sweet and black gum, elm, dogwood, and ironwood, and on some of the hummocks red cedar.

Southward from Brooksville the prevailing flat pine woods are diversified with lakes and bodies of hummock land. The flatwoods afford excellent pasturage, and stock-raising gives occupation to many. On the headwaters of the Hillsborough river are numerous rich hummocks.

In the vicinity of the coast, from the mouth of the Withlacoochee to that of the Wekawatchee river, the sand and soil have, to a large extent, been washed away, laying bare the underlying limestone, giving rise to rocky hummocks and Gulf hummocks; and in this region limesinks and large springs are characteristic features.

Crystal and Homosassa rivers are both short "runs" from limestone springs. The scenery along the coast is also diversified by many lakes of clear water.

It will thus be seen that Hernando presents the characters rather of one of the counties of the Brown Loam upland region of middle Florida than of the peninsula.

The extension of the limestone down to the sea-level seems to be characteristic of the coast from the Apalachee bay southward nearly to Tampa bay, a circumstance already noticed by Williams, who says the navigation of all the streams from the Saint Marks to the Suwannee is impeded by a stratum of this rock, which has a kind of flint imbedded in it, and when the waves have washed the calcareous matters away these flinty nuclei form extensive and rugged reefs.

Lack of transportation is a serious drawback in this county. Cotton is hauled to the various ports on the Gulf, and is thence shipped by steamer or sail-boat to Charleston and Savannah at an average rate of 75 cents per hundred pounds.

HILLSBOROUGH.

Population: 5,814.—White, 4,899; colored, 915.

Area: 1,300 square miles.—Woodland, all; pine lands, 1,185 square miles; swamps, 75 square miles; hummocks, 40 square miles.

Tilled lands: 11,261 acres.—Area planted in cotton, 556 acres; in corn, 4,968 acres; in oats, 98 acres; in rice, 23 acres; in sweet potatoes, 583 acres; in sugar-cane, 238 acres.

Cotton production: 150 bales; average cotton product per acre, 0.27 bale (sea island), 376 pounds seed-cotton, or 94 pounds cotton lint. Five per cent. of the tilled lands are devoted to cotton culture.

Hillsborough county is undulating, even somewhat hilly, the prevailing soil being sandy, but becoming more loamy toward the east, where much of the high land, especially in the northeastern part of the county, has a substratum of red or yellow loam, similar to that so common in the counties of middle Florida. Westward the subsoil is sandier, and the natural growth more predominantly the long-leaf pine, except where the country rock (the usual limestone) is brought by the removal of the overlying sands by denudation near enough the surface to influence the soil, when the high hummocks, with their varied growth of live oak, white oak, red bay, and magnolia, are produced. The high lands with loam subsoil support a growth consisting of long-leaf pine, mingled with red and black oak and hickory. East of Tampa bay the land is generally timbered with pine, though some of it with clay subsoil is tolerably fertile; southeastward most of the land is rather flat.

The cultivated soils may be included under three heads: 1. *Pine lands of various qualities;* 2. *High hummocks;* 3. *Low hummocks.*

ABSTRACT OF REPORT OF W. F. WHITE, OF DUNEDIN.

1. *Pine lands.*—These lands are high and generally quite level, but more broken in the northeast. The usual growth, according to the quality of soil, is long-leaf pine and scrub oak, with which black-jack, turkey, and water oaks are associated as the soil improves in fertility. About three-fourths of the county is pine lands. The soil is in the west a fine, sandy, gray loam; in the eastern part of the county heavier, becoming in places a yellowish clay loam. The thickness of soil is variable, being sometimes of uniform quality for 2 feet. The subsoil is usually of a heavier nature, being in part a white sand and in places sandy loam of yellowish and mahogany colors. In the latter cases the subsoil may be mixed to advantage with the surface soil. In the low pine flats subject to overflow the subsoil is mixed with a great quantity of sea-shell fragments. The whole county has a substratum of limestone—often earthy, sometimes flinty—at varying depths from the surface. These pine-land soils are usually easy to cultivate, being a little more difficult in wet seasons, and they are all naturally well drained. The chief crops are sea-island cotton, sweet potatoes, sugar-cane, and corn, and the soil is apparently, next after tropical fruits, best adapted to the cultivation of cotton, which makes about three-fourths of the cultivated crop. The average height of stalk is about 5 feet, and it is most productive between 3 and 5 feet.

On fresh land the average seed-cotton product per acre is given at 300 pounds, 1,600 pounds being needed to make a 400-pound bale; the staple is of first quality. Three years' cultivation without manure will reduce the yield to 150 pounds, without making, however, any material change in the quality of the staple or in the proportion of lint to seed-cotton. Very little of the land originally cultivated lies turned out, but rotation of crops is commonly practiced, with good results; for after two or three years' rest, or a change of crops, the soil produces about as well as it did originally.

2. *High hummocks.*—These constitute not more perhaps than one one-hundredth part of the cultivated lands, and they occur rather more abundantly in the eastern than in the western part of the county. The timber is the usual hummock growth of oaks and other hard woods. The soil exhibits many varieties, being sometimes a light sandy loam, sometimes a heavier clay loam. Colors vary also from buff to yellow, mahogany, and brown. The subsoil in places is a clay, sometimes a cold, hard sand apparently. These hummock soils are always well drained, generally early and warm, and are well adapted to any of the southern crops. Cotton is, however, planted upon about one-half the area. It attains the usual height of 4 to 6 feet. The fresh land will yield from 400 to 800 pounds of seed-cotton to the acre, and about one-fourth its weight of lint-cotton, which rates as first quality. With proper cultivation, the soil will hold its own for years; it is not known how long. All hummock lands originally cleared are in cultivation.

3. *Low hummocks, with saw-grass, including marshes.*—About the same proportion, one in one hundred, of the county area is of this character, as of high hummock land. Low hummocks and marshes, etc., are found scattered all over the county. Cypress, bay, and maple form the chief growth, and where there is no cypress then there is usually an undergrowth of mere brush.

The soil is a black or brownish-black vegetable mold of varying thickness, resting usually upon a heavy cold sand, which seems to be impervious. This subsoil is underlaid sometimes by sand and sometimes by rock at 1 to 10 feet depth.

The soil is difficult to cultivate, being too wet or too dry, according to the season, and is very little adapted to cotton, of which only a small proportion is planted. Thorough drainage would probably render these spots as good as any in the county.

The plant tends to run to weed occasionally from causes not understood, sometimes because of wet weather. In the first case thorough cultivation and the importation of new seed, in the second the stopping of cultivation for the time, have been found effective remedies. Sand spurs and crab-grass are the most troublesome weeds. These lands usually lie so favorably that there is little if any injury from washes. The valleys are sometimes slightly injured, sometimes benefited, by the washings from the higher levels; but no general rule holds good. Stock-raising is still one of the most important lines of business here, as in Manatee county adjoining.

Cotton is usually shipped, as fast as baled, from the ports of Tampa, Clear Water, Dunedin, etc., by steamer or sail-boat, to Charleston and Savannah. The usual rate is 75 cents a hundred.

POLK.

Population: 3,181.—White, 3,033; colored, 148.

Area: 2,060 square miles.—Woodland, 1,960 square miles; pine lands, 1,760 square miles, one-half flatwoods; swamp lands, 160 square miles; hummocks, 40 square miles; prairie, 100 square miles.

Tilled lands: 8,688 acres.—Area planted in cotton, 481 acres; in corn, 5,593 acres; in oats, 269 acres; in rice, 20 acres; in sweet potatoes, 484 acres; in sugar-cane, 154 acres.

Cotton production: 95 bales; average cotton product per acre, 0.20 bale (sea island), 276 pounds seed-cotton, or 69 pounds cotton lint.

The surface of Polk county is generally level or slightly undulating, and with apparently no great elevations. Lakes of all sizes from 10 acres area to 5 miles across are numerous throughout the county, especially west of Peace creek. The lands between the lakes are somewhat elevated and rolling.

The underlying limestone is, as a general thing, well hidden by the sands, and makes its appearance at the surface in very few places. Near Peace creek there are some limestone and sulphur springs, which flow off into that stream.

On the east a chain of large lakes, connected by the Kissimee river, forms the boundary between this and Brevard county. The principal soil is the gray, sandy soil of the pine lands, which covers perhaps three-fourths of the county. Subordinated to this are the hummocks and prairies, and occasionally a small area of what is termed red hummock land, so called from its red subsoil. The pine lands show the usual varying degrees of fertility.

ABSTRACT OF REPORT OF MR. S. B. BONHAM, OF BARTOW.

The most important soil varieties are:

1. *Gray pine-lands soil.*—This covers about three-fourths of the county, and while inferior in fertility to the others is yet more important on account of its wider distribution. The prevailing growth is the long-leaf pine; in low places, gallberry bushes. The soil is fine, sandy, of whitish-gray to buff colors, of uniform substance for 1 or 2 feet, below which depth it passes into a somewhat heavier subsoil, containing hard "black gravel", the whole underlaid by sand and sometimes by lime rock at 5 or 6 feet depth. Tilling qualities of the land easy in all seasons. About one-fourth of the cultivated soil is in cotton, which attains a height when most productive of 3 feet. A yield of 150 pounds of seed-cotton to the acre (averaging one-third its weight of lint) may be realized upon fresh land. The cotton (sea island) is worth in the market from 35 to 40 cents a pound. On some of these lands the yield of cotton is by a few years' cultivation, even without manure, increased to 200 pounds of seed-cotton per acre.

2. *Hummock land.*—In the vicinity of Bartow only a small proportion of the land is of this character, one one-hundredth. The hummocks bear the usual variety of timber, pine, oaks, hickory, ash, elm, and palmetto, with and without saws. The soil exhibits a great variety of colors, varying from gray to nearly black. It is supported by sand, or occasionally lime rock, at 3 to 4 feet depth.

The principal crops are corn, sugar-cane, potatoes, rice, oats, and cotton; of these, cotton is cultivated on about one-twentieth of the tilled area. The stalk often attains a height of 6 feet or more, but is most productive at 3 or 4. The seed-cotton product of fresh land is 250 to 300 pounds, yielding one-third its weight of lint, selling at 30 cents a pound. Two years' cultivation without manure will bring down the yield to 200 pounds. One-tenth of the originally cultivated hummock lands lies now turned out, but on reclamation it produces about as well as when fresh.

3. *Red hummock.*—The area formed by this class of soil is very small, and cannot well be estimated. The usual growth is hickory, live oak, ash, and grape-vines. The soil is a mahogany-colored clay loam 1 or 2 feet thick, with a reddish loamy subsoil, containing flinty pebbles, and underlaid at 4 or 5 feet depth by lime rock. It is an extremely fertile soil adapted to all the southern crops. About one-tenth of it is usually in cotton, which grows to a very great height, being mostly weed, and producing badly—only 50 pounds of seed-cotton to the acre. Though not well suited to cotton, all land of this kind is in cultivation, as it will bring 50 bushels of corn to the acre.

Upon all the soils described the cotton-plant is inclined to run to weed by too wet weather, and topping is the usual remedy. Sand spurs and cockleburs are troublesome upon all the soils, and, in addition to these, Spanish needles, careless weed, and beggar lice become troublesome upon the rich red hummock land. The generally level surface of the county prevents any serious injury from washes.

Most of the shipments of cotton are made during October by steamer to Savannah and Charleston, and the rate is about $1 per bale.

BREVARD.

(See under "Pitch Pine, Treeless, and Alluvial Region".)

III.—PITCH PINE, TREELESS, AND ALLUVIAL REGION.

Comprising in western Florida parts of Escambia,* Santa Rosa,* Walton,* Washington,* Calhoun,* and all of Franklin; in middle Florida parts of Liberty,* Wakulla,* Jefferson,* and Taylor;* in eastern Florida parts of Nassau,* Duval,* and Saint John;* on the peninsula parts of Lafayette,* Levy,* Hernando,* Hillsborough,* Manatee, and Polk,* all of Monroe, Dade, and parts of Brevard, Orange,* and Volusia.*

ESCAMBIA.

(See "Long-leaf pine region".)

SANTA ROSA.

(See "Long-leaf pine region".)

WALTON.

(See "Long-leaf pine region".)

WASHINGTON.

(See "Long-leaf pine region".)

CALHOUN.

(See "Long-leaf pine region".)

FRANKLIN.

Population: 1,791.—White, 1,199; colored, 592.
Area: 690 square miles.—Woodland, 490 square miles; marshes, 200 square miles; pine lands, 390 square miles, mostly flatwoods; swamps and hummocks, 100 square miles.
Tilled lands: 521 acres.—Area planted in cotton, none; in corn, 145 acres; in oats, none; in rice, none; in sweet potatoes, 197 acres; in sugar-cane, 81 acres.
Cotton production: None.

In a general way Franklin county may be described as a sandy level, a few feet above tide-water, except along the river and between its five mouths, where the country is marshy and covered with rank aquatic grasses.

The limestone is seldom seen, especially west of the river in Franklin; but shallow ponds abound everywhere, and lake Winico is a large body of water in the western part of the county, 6 to 8 miles long, with an outlet into the Apalachicola river. A few gardens are the only attempts at cultivation of the soil. Apalachicola, the county site, was formerly an important port, but its prosperity has, in great measure, passed away. To this port most of the products of the county are sent for shipment.

LIBERTY.

(See "Long-leaf pine region".)

WAKULLA.

(See "Long-leaf pine region".)

JEFFERSON.

(See "Oak, hickory, and pine upland region".)

TAYLOR.

(See "Long-leaf pine region".)

NASSAU.

(See "Long-leaf pine region".)

DUVAL.

(See "Long-leaf pine region".)

SAINT JOHN'S.

(See "Long-leaf pine region".)

LAFAYETTE.

(See "Long-leaf pine region".)

LEVY.

(See "Long-leaf pine region".)

HERNANDO.

(See "Long-leaf pine region".)

HILLSBOROUGH.

(See "Long-leaf pine region".)

MANATEE.

Population: 3,544.—White, 3,378; colored, 166.
Area: 4,080 square miles.—Woodland, 3,350 square miles; prairie, 1,100 square miles; marsh, 230 square miles; pine lands, 3,030 square miles; swamps, 200 square miles; hummocks, 120 square miles.
Tilled lands: 5,257 acres.—Area planted in cotton, none; in corn, 2,668 acres; in oats, none; in rice, 22 acres; in sweet potatoes, 436 acres; in sugar-cane, 124 acres. 241
Cotton production: None.

Manatee county, like Polk, has a generally level surface, diversified with ponds and lakes, with gently rolling pine lands (mostly Cuban or pitch pine) between. Peace creek, with its chief tributary, the Charles Apopka, flows nearly through the center of the county. Near these water-courses the underlying limestone appears sometimes at the surface, though its presence is oftener indicated by the fertile hummocks and by limestone springs, which flow off into the creeks. A subsoil of clayey loam underlies some of the best pine lands of Manatee, and part of the prairies also appear to have a clay subsoil.

A large part of the county is prairie land covered with rank grasses, which afford excellent pasturage for cattle, and stock-raising is a most important occupation.

The Manatee river on the west is one of the largest streams after Peace creek. Myakka river flows into Charlotte harbor near its upper end. Near the headwaters of this river are some large lakes and a great tract of prairie land.

As yet little or no cotton is produced in Manatee county.

Peace creek, which has been made navigable as far as Fort Meade, in Polk county, is the chief outlet for the productions of this county to Charlotte harbor.

POLK.

(See "Long-leaf pine region".)

MONROE.

Population: 10,940.—White, 7,659; colored, 3,281.

Area: 2,600 square miles.—Woodland, a small proportion of everglades, marshes, prairies, and savannas make up the greater part of the county, and it is impossible to give estimates of the proportion of each.

Tilled lands: 1,705 acres.—Area planted in cotton, none; in corn, 64 acres; in rice, 3 acres; in sweet potatoes, 48 acres; in sugar-cane, 26 acres.

Cotton production: None.

Monroe county includes a comparatively small proportion of cultivated lands, a large part of its area being covered by cypress swamps and everglades, and it is only in the northern part of the county that the land is much under cultivation.

A number of islands and keys, the most important of which is Key West, the county seat, belong to Monroe county. Upon these the cultivation of tropical fruits is an important industry.

Adjacent to the Caloosahatchee river and Charlotte harbor are pine lands (pitch pine), which pass gradually into a savanna or prairie, with groves or clumps of hummock land heavily timbered, interspersed with ponds and lakes of clear water.

With the draining of the everglades a vast amount of savanna and prairie land will be made available for agricultural purposes.

DADE.

Population: 257.—White, 190; colored, 67.

Area: 7,200 square miles.—Woodland, a strip along the coast and in the northern part of the county, about 500 square miles; of the rest, everglades, marsh, prairie, savanna, and swamp, it is impossible to give a trustworthy estimate of the proportions.

Tilled lands: None.

The greater part of the area of Dade county is occupied by the everglades, by the prairies and savannas which skirt it, and by lake Okeechobee, in the northwestern corner, which covers an area of over 500 square miles.

The following descriptions have been compiled from various sources, chiefly from the publications of the bureau of immigration:

Along the Alantic coast there is a strip of rocky pine lands from 3 to 15 miles wide, and having a considerable elevation above the sea. The rock here is apparently the same which forms the substratum of the entire county, and it is described as an oolitic and crystalline limestone, which is sometimes quite soft and easily cut and hardens on exposure to the atmosphere, being thus suitable for building purposes.

The pine lands are skirted with a strip of prairie or savanna land from half a mile to a mile in width, reaching to the everglades. It is thought by some that this prairie strip has been formed by the recession of the water, by evaporation, or by upheaval. This prairie comprises some of the richest land in the state.

The everglades, which form so singular and unique a feature of Florida, may be described as a shallow lake of vast extent occupying a basin or depression in the limestone of the country.

From surveys recently made it is known that the whole bed of the everglades has considerable elevation above the sea, so that the draining of this area is merely a question of time and expense.

All the streams which flow from the everglades are interrupted by falls or rapids. The Caloosahatchee is navigable by steamers to within 10 miles of lake Okeechobee, where the rapids begin.

The water through the everglades varies in depth from 6 inches to as many feet, and is filled with aquatic and semi-aquatic grasses and other plants. From this maze of water and vegetation rise innumerable islands, containing from 1 acre to 100 acres of land. These islands are covered with a growth of cypress, sweet bay, crab-wood, mastic, cocoa palms, cabbage palmetto, and live and water oaks, beneath which bloom flowers in almost endless variety.

Notwithstanding the shallowness of the water in the everglades and the profuseness of the vegetation growing in it, it is comparatively pure and clear, and abounds in fish, turtles, and alligators. Bears, panthers, wild-cats, and deer inhabit the islands.

Lake Okeechobee is about 50 miles long from northwest to southeast and about 20 miles broad, and is from 8 to 20 feet deep. Its northeastern and eastern shore is skirted with a low hummock of red bay, live oak, water oak, and other timber; its western and southwestern shore with a dense growth of saw-grass.

The lake has no visible outlet except as its waters soak through the everglades, and the lands around the lake can never be made available till the waters are lowered by artificial canals.

The soil of Dade county is generally sandy, but mingled in places with lime. The sea-island variety of cotton grows well on this soil, and is perennial here, and can be picked at almost all seasons of the year.

The soil of the prairies and savannas, on account of the vegetable matter and the influence of lime, is exceedingly rich, and the draining of the everglades will make available many square miles of soil of similar character.

Between Fresh Water creek and Cape Sable the prairie approaches near the coast, extending into the country about 15 miles, and is interspersed with hummocks of good land. This prairie usually terminates in cypress swamps, and these in the interminable glades (Williams).

BREVARD.

Population: 1,478.—White, 1,379; colored, 99.

Area: 4,390 square miles.—Woodland, 1,840 square miles; prairie and savanna, 1,750 square miles; marsh lands, 800 square miles; pine lands, 1,340 square miles; swamp and hummock, 500 square miles.

Tilled lands: 1,952 acres.—Area planted in cotton, 6 acres; in corn, 555 acres; in oats, 5 acres; in rice, 13 acres; in sweet potatoes, 160 acres; in sugar-cane, 152 acres.

Cotton production: 2 bales; average cotton product per acre, 0.33 bale (sea island), 464 pounds seed-cotton, or 116 pounds cotton lint.

Brevard county is best known from the oranges, pineapples, and other tropical fruits which are produced, chiefly along Indian river. The culture of cotton is of minor importance. It presents a considerable variety in its soils and surface configuration. The western shore of Indian river is skirted with cabbage hummocks on a rich but rocky surface (Williams). The coquina rock makes the river banks in many places; beyond this hummock land often follows pine lands of varying quality, and then grassy savannas and swamps. A very considerable proportion of the county is prairie or savanna land, and on this account stock-raising is an important industry.

In many respects Brevard resembles Manatee county, much of whose description will apply equally well here. The products of this county find their way to market by the Indian river.

ORANGE.

(See "Long-leaf pine region".)

VOLUSIA.

(See "Long-leaf pine region".)

PART III.

CULTURAL AND ECONOMIC DETAILS

OF

COTTON PRODUCTION.

REFERENCE TABLE

OF

REPORTS RECEIVED FROM FLORIDA COUNTIES.

OAK, HICKORY, AND PINE UPLAND REGION.

Jackson.—JAS. V. BURKE. Marianna, March 30, 1880. Refers to township 5 north, ranges 11 and 12 west. Describes the red lime-lands, loam uplands, and long-leaf pine uplands.

Gadsden.—JESSE WOOD. Mount Pleasant, October 1, 1880. Refers to township 3 north, range 5 west. Describes the loam uplands and long-leaf pine table-lands.

Leon.—JOHN BRADFORD. Tallahassee, March 5, 1880. Refers to townships 1 and 2 north, ranges 1 and 2 east, and describes the oak uplands, with associated long-leaf pine uplands.

1. *Jefferson.*—J. P. GRANTHAM. Waukeenah, September 1, 1880. Refers to township 1 south, range 4 east. Describes loam and pine uplands, light hummocks, and flatwoods.

2. *Jefferson.*—JAMES F. TUCKER. Monticello, March 16, 1880. Refers to townships 2 and 3 north, ranges 6 and 7 east. Describes high hummocks, first and second class pine lands, and flatwoods.

LONG-LEAF PINE REGION.

Santa Rosa.—DR. JOHN M. MCGEHEE. Milton, December 18, 1880. Refers to entire county, and describes second and third class pine lands.

1. *Hamilton.*—THOMAS N. BELL. Jasper, July 1, 1880. Refers to township 1 north and range 14 east. Describes flatwoods and pine uplands.

2. *Hamilton.*—HENRY J. STEWART. Jasper, February, 1880. Refers to the uplands and lowlands contiguous to Tiger creek, and describes sandy upland soil.

1. *Suwannee.*—L. A. JENNINGS. Live Oak, January 4, 1880. Refers to the entire county. Describes first, second, and third class pine lands.

2. *Suwannee.*—GEORGE E. DEXTER. Houston. Refers to township 2 south, range 14 east. Describes first-class pine lands, gray or gravelly lands, and black hummocks.

1. *Columbia.*—G. B. SMITHSON. Lake City, February 20, 1880. Refers to township 3 south, range 16 east. Describes the three classes of pine lands.

2. *Columbia.*—T. R. COLLINS. Mikesville, February 27, 1880. Refers to township 6 south, range 17 east, and describes the pine lands and hummocks.

Saint John's.—COL. N. R. FITZ HUGH. Picolata. Describes the pine lands.

1. *Clay.*—O. BUDINGTON. Middleburg, January 7, 1880. Refers to township 5 south, range 24 east. Describes the better class of pine lands.

2. *Clay.*—LAWRENCE D. WALL. Wilderness, March 10, 1880. Refers to the entire county. Describes the same class of lands as the preceding.

Hillsborough.—W. F. WHITE. Dunedin, January 30, 1880. Refers to township 28 south, range 15 east. Describes pine lands and high and low hummocks.

1. *Alachua.*—P. B. TURPIN. Waldo. No date. Refers to the entire county, and describes pine lands and hummocks.

2. *Alachua.*—WILLIAM H. ROBERTSON. Gainesville, October 19, 1881. Refers to Payne's prairie and lowlands of Pithlachocco, or Newnan's lake, and the level pine lands and hummocks near Gainesville. Describes black and gray hummocks and pine land.

Marion.—J. L. BINNICKER. Flemington, February 16, 1880. Refers to townships 12 and 13 south, ranges 20 and 21 east. Describes the pine and associated hummock lands.

Sumter.—GEORGE M. LEE. Leesburg, September 23, 1880. Refers to township 19 south, range 24 east, and describes second-class pine lands and low sandy hummocks.

Polk.—SCOTT B. BONHAM. Bartow, January 10, 1880. Refers to the country about Bartow. Describes hummocks and gray pine lands.

Taylor.—JOHN B. CARRIN. Stephensville, January 22, 1880. Refers to townships 8 and 9 south, ranges 9 and 10 east. Describes two varieties of pine lands and high hummocks.

Volusia.—D. J. MCBRIDE. Volusia, March 18, 1880. Refers to township 15 south, range 29 east, and describes the better class of pine lands.

ABSTRACTS OF THE ANSWERS TO SCHEDULE QUESTIONS.

TILLAGE, IMPROVEMENTS, ETC.

1. Usual depth of tillage (measured on land side of furrow), and draft employed in breaking up.

Four to six inches is the usual depth of tillage in preparing the land; 2 inches in cultivation. The draft employed is mostly one horse or mule, occasionally two horses or a yoke of oxen.

2. Is subsoiling practiced? If so, with what implements, and with what results?

In most counties subsoiling seems to be practiced not at all; in a few cases, Jackson, Gadsden, Columbia, with Watts' subsoil plow, with bull-tongue plow, etc. As to results, opinions are about equally divided, some holding that the soils are improved, others that they are injured by subsoiling.

3. Is fall plowing practiced? With what results?

In some counties fall plowing is not practiced; in others, very little, except in sowing oats. In every case where practiced the results are good; "the green vegetation turned under equals a coat of manure."

4. Is fallowing practiced? Is the land tilled while lying fallow, or only "turned out"? With what results in either case?

Hamilton, Columbia, and Hillsborough report no fallowing practiced. In the other counties the practice is followed to some extent. Results always good, except where cattle are allowed to graze upon the land when "turned out". In Leon county, where land is "turned out", it is apt to grow up in broom-sedge, which does not seem to improve it. In Alachua and Polk fallow land is sometimes sown in cow-peas; in the others it is simply "turned out". "When land is turned out a year or two it yields nearly as well as fresh land, and is easier to cultivate."

5. Is rotation of crops practiced? If so, of how many years' course, in what order of crops, and with what results?

In Santa Rosa, Hillsborough, Marion, and Saint John's systematic rotation of crops is not generally practiced; in the other counties the order of crops is: corn, cotton, oats, and pease, or sweet potatoes, or fallow; in Jackson and Taylor, a rest every third year is reported. In Gadsden, a good sweet potato crop can be made by planting the vines after oats are cut. Wherever systematic rotation of crops is practiced the results are reported good; "the lands are kept at a uniform degree of fertility."

6. What fertilizers or other direct means of improving the soil are used? With what results?

Cottonseed and stable manure are used to some extent in all the counties; guano, dissolved bone, and Charleston superphosphates are also generally used to a small extent. The results are always good. The correspondent from Hamilton says: "By proper application of cottonseed and stable manure, combined with a little lime and plaster, 600 pounds of cotton per acre can be produced upon land considered worn out."

7. Is green-manuring practiced? With what results?

With one or two exceptions green manuring is reported, but usually to a limited extent only. The green crop is mostly cow-peas, but occasionally rye, in the spring, and in clay *all* green vegetation; in Jefferson and Santa Rosa, "beggar lice" or Florida clover (*Richardsonia scabra*), along with cow-peas. There is no difference of opinion as to results; they are always good.

8. How is cottonseed disposed of? If sold, on what terms, or at what price?

Cottonseed is used to some extent in all the counties for manure and as feed for stock. Where a market is accessible, the bulk of the seed seems to be sold. The prices reported vary greatly—from 7 or 10 to 25 cents a bushel, or from $8 to $30 a ton. The upland or short-staple seed is less valuable, the relative values of the long and short staple being, in Suwannee county, $8 per ton for short- and $14 for long-staple seed.

9. Is cottonseed-cake used for feed? Is it used for manure?

In the counties near or accessible to oil-mills the seed-cake is used to some extent both as cow-feed and as manure, chiefly, however, as manure. For this purpose it is used sometimes alone, but is generally mixed with stable manure, muck, or phosphates. The counties where its use for feed or manure is reported are Gadsden, Suwannee, Columbia, and Taylor. It must, however, be stated that where two reports have been received from one county the answers are frequently conflicting.

PLANTING AND CULTIVATION OF COTTON.

10. What preparation is usually given to cotton land before bedding up?

In most of the counties no preparation; in Jackson and Gadsden flushing or breaking up broadcast in winter and bedding in the spring; in Jefferson, Hamilton, and Columbia bedding and rebedding in spring, except where a crop of weeds is occasionally turned under in the fall.

11. Do you plant in ridges? How far apart? What is the usual time of planting?

The custom in all the counties is to plant in ridges 3½ to 6 feet apart. In the upland counties the usual time of planting is about the 1st of April (from the 25th of March to the 10th of April). The sea-island variety is usually planted earlier, during March; in Hillsborough, 1st of February to May; Volusia, 1st of March to May; Polk, 1st of March, the latitude determining to some extent the time of planting.

12. What variety of seed is preferred? How much is used per acre?

The short-staple varieties planted in the upland counties are "Boyd's Prolific", "Dixon's Improved Prolific," "Hurlong," "Rameses," and "Lattimer". From 1 to 2 bushels per acre are planted, the average being about 1½ bushels. The sea-island varieties have only local names; the "Dexter" and "Bollar" are the only ones specified. Of the sea-island seed, half a bushel to the acre is the common practice; in a few cases three-fourths and even 1 bushel.

13. What implements are used in planting?

In the upland counties "planters" are in use to some extent, but the usual practice throughout the state is to open with "scooter", "bull-tongue," or small plow, and cover with a board, sometimes with a harrow.

14. Are "cottonseed planters" used? What opinion is held of their efficiency or convenience?

In the northern counties, from Jackson to Columbia and Suwannee, planters are used to some extent. "They save both time and labor, a better stand is obtained, and the young crop is more easily cultivated after them."

15. How long usually before seed comes up? At what stage of growth is cotton thinned to a stand, and how far apart?

The first appearance of the young plant above ground depends greatly upon the character of the season; when wet, in four to five days; when dry, twelve to fourteen days, the average being about seven days. When the plant is 4 to 6 inches high, or when the third or fourth leaf is of good size, which occurs about three or four weeks from the time of planting, the crop is thinned to a stand and about 18 inches apart. Sometimes the plants are left only 10 inches, sometimes as much as 24 inches apart, according to the quality of the land. In the uplands the stand is closer (8 to 12 inches) than in the sea-island counties, where 18 inches to 3 feet are left between the plants.

16. Is cotton liable to suffer from "sore-shin"?

In the upland counties sore-shin is common, particularly with early plantings and where the weather is cool and dews heavy. In the lower counties, with sea-island cotton, it seems to be generally less prevalent, and to be the result of bruises with the hoe or plow. In Volusia, only on low, damp lands.

17. What after-cultivation is given, and with what implements?

The general custom is to plow three or four times, usually with sweeps, keeping the grass out of the rows by hoeing whenever it becomes necessary. In Jackson, the reporter says, bar off with turn-plow, throwing the earth from the plant. Afterward cultivate entirely with sweeps, except on the stiffest of red lands, where round-pointed shovels are sometimes used. In Volusia, first bar off the cotton, then chop out. After standing a week, dirt is thrown to the plant with a sweep. The correspondent from Jefferson thinks implements make no difference, all depending upon keeping the cotton clear of grass and weeds.

18. What is the height usually attained by cotton before blooming? When do the blooms first appear? When do the bolls first open?

The heights before first blooms appear vary greatly with the quality of the soil. The statements give 6 inches to 4 feet, 18 inches to 2 feet being the average. The first blooms appear usually between the 5th and the 15th of June. In the southern counties, occasionally in the latter part of May, and about forty days after the appearance of the first blooms, the first bolls open. This happens, therefore, about the last of July or first of August, nearly four months after planting.

19. When does the first picking begin? How many pickings are usually made, and when?

In the upland counties picking begins about the middle of August, and continues till the crop is gathered, which is usually in November, sometimes not till December. Three to six pickings are usually necessary. Early or prolific cotton is usually all picked by the first of November. In the southern counties the picking begins about August 1 and lasts till the last of October usually. Four pickings if the caterpillar does not come, three if it does.

20. Is all the cotton generally gathered? At what date does picking usually close?

The cotton is generally gathered, except where labor is scarce, or "where the negroes lose interest in the crop, as during the holidays and when cold weather comes on". In Jefferson and Hamilton some of the crop is lost in this way. Picking is ended, as a rule, in November, but with scarcity of hands it is sometimes protracted till nearly Christmas.

21. At what time does the first "black-frost" appear?

In the upland counties about the middle to last of November. In the southern counties later; sometimes not at all. In Hillsborough about once in three or four years a "black-frost" occurs about Christmas. Marion, middle of October; Taylor, middle of December.

22. Is the seed-cotton put in pens in the field or ginned as the picking progresses?

Small farmers sometimes pen the cotton in the field. Others put it in substantial houses in the field or at the gin house, "never in pens in the field, as it would not stay there long." (Gadsden.) "If we penned in the field the negroes would not leave us seed enough to plant." (Alachua.) "Prefer to gin as picking progresses, but have to be governed by circumstances." (Jefferson.) "Both plans prevail." (Sumter.)

GINNING, BALING, AND SHIPPING.

23. What gin is used? How many saws? What motive power?

For the upland or short staple cotton the gins in use are Pratt's, Brown's, Carver's, and Gullett's "light-running". The size is mostly about 50 saws, but varies between 30 and 80 saws. For the long-staple variety McCarthy's gin is most used; Hull's and Whitney's to a less extent. The motive power varies with circumstances. The large gins are run by steam and water; smaller ones generally by mule- or horse-power.

24. How much lint is cleaned in a day's run? How much seed-cotton, on an average, is required for a 400-pound bale of lint?

The answers, even from same county, vary greatly. In a day of ten hours two bales of upland cotton is cleaned with horses as motive power, and four to six bales where steam-power is used; that is, 1,000 to 1,500 pounds by horse-power and 2,000 to 3,000 pounds by steam-power. Of the long-staple cotton about 250 to 300 pounds of lint may be cleaned by each gin. The two correspondents from Clay give a day's run (10 hours) at 250 pounds and 700 pounds, respectively. For a 400-pound bale of upland cotton about 1,200 to 1,500 pounds of seed-cotton are needed. Of the long-staple cotton a 400-pound bale requires usually about 1,600 pounds of seed-cotton, of from 1,500 to 1,700.

25. What press is used for baling? What press is generally used in your vicinity? What is its capacity?

The upland cotton is generally packed with screw-press; in some parts the old-fashioned wooden screw; in others, improved iron screws.

Jackson. Stribling's screw, when run by 3 men and 1 mule, can pack 15 bales a day.

Leon. Scofield's iron screw and old-style wooden screw. The latter, when run by 2 mules, can pack 10 to 12 bales a day.

Columbia. Winship Brothers' screw. When run by water or steam its capacity is 50 bales a day.

The sea-island cotton is usually packed in long, sound bags, with an iron pestle or crow-bar. One hand can in this way pack 1 to 2 bales a day, according to his expertness.

In some of the upper counties the long-staple cotton is also packed with screw-press, and no injury to the fiber seems to result from the use of screw-press rather than the crow-bar.

26. Do you use rope or iron ties for baling? If the latter, what fastening do you prefer? What kind of bagging is used in your region?

Iron ties used exclusively in the upland counties. For sea-island cotton no ties used unless the bale is very large and heavy; then iron ties preferred. The arrow fastening is the only kind mentioned. For upland cotton the bagging is of several kinds—jute, gunny, India, and American bagging. The sea-island bagging mostly used for the long-staple cotton; Dundee bagging is reported from Columbia, and manila from Hillsborough.

27. What weight do you aim to give to your bales? Have transportation companies imposed any conditions in this respect?

The desired weight of upland cotton bale is 500 pounds; that of the sea-island cotton, 350 pounds. No restriction is imposed by transportation companies, but steamers charge so much *a bale*, while railroad companies charge so much *a pound*. Buyers deduct 10 pounds when a bale of short-staple cotton weighs less than 300 pounds.

28. At what time do you ship? How? To what station, city, or port? What is the usual freight to such port per bale?

Shipping begins usually in September and continues to January, and even later. The chief markets are Columbus and Savannah, Georgia, and Charleston, South Carolina. Santa Rosa ships to New Orleans, at 75 cents a bale, by steamer; Jackson to Columbus, Georgia, by boat, at 75 cents a bale, and to Savannah by railroad at $2 25. Leon, by railroad and steamer, to New York at $1 20 per hundred. The counties in middle and eastern Florida, not on the coast nor on navigable streams, ship by rail and steamer to Charleston and Savannah at $2 to $3 a bale, or 75 cents a hundred pounds. Hillsborough, Polk, and other counties near the coast ship by steamer to the same ports, at the rate of 75 cents to $1 a bale. Volusia, by the Saint John's, to same ports, at $1 50 a bale (see county descriptions).

DISEASES, INSECT ENEMIES, ETC.

29. By what accidents of weather, diseases, or insect pests is your cotton crop most liable to be injured? At what date does these several pests or diseases usually make their appearance?

Wet weather and Gulf storms; sore-shin, shedding, rot of bolls, rust, and blight; cut-worm, boll-worm, lice, and caterpillar. The cut-worm, lice, and sore-shin make their appearance early, usually in April and May; blight, reported as most hurtful in Hamilton, appears generally before blooming; rust appears usually early in August. The caterpillar usually appears in August or September. The other troubles may come at any time after June.

30. To what cause is the trouble attributed by the farmers? What efforts have been made to obviate it? With what success?

Rust is thought by correspondents in Jackson, Gadsden, Columbia, and Alachua to be due to want of potash and vegetable matter in the soil. Fertilizing with barn-yard manure is considered almost a preventive by the correspondent from Columbia. In Jefferson, Suwannee, and Volusia rust is thought to be caused by excessive rains. Shedding is supposed by the correspondents from Jackson, Gadsden, Leon, Jefferson, Suwannee, Columbia, and Volusia to be due to extremes of seasons and defective cultivation The correspondent from Alachua thinks that shedding as well as rust may be prevented by resting the land and rotation of crops, so as to increase the amount of vegetable mold in the soil; also, deep careless plowing, by which the roots of the plant are cut, is often to blame. Shallow plowing in Gadsden has been deemed a remedy or preventive of shedding in Jackson and Gadsden. Late plowing has been tried in Suwannee as a remedy both for shedding and blight, and in some instances with fine success. No efforts have been made against the boll-worm; but Paris green has been tried against the caterpillar, and fires at night against the moth. Wet weather favors greatly the spread of the caterpillar.

31. Is rust or blight prevalent chiefly on heavy or ill-drained soils? Do they prevail chiefly in wet or dry, cool or hot seasons? On which soil described by you are they most common?

On ill-drained soils, especially sandy and sterile lands in Gadsden, Leon, Jefferson, Santa Rosa, Suwannee, Columbia, Clay, Hillsborough, Alachua, Marion, Taylor, and Volusia. Difference in the soil is not thought to have any effect in Jackson, Hamilton, and Sumter. Wet weather and hot season, or extremes either of wet or dry, or rainy season followed by a drought, are in every case looked upon as causes of these troubles.

32. Is Paris green used as a remedy against the caterpillar? If so, how, and with what effect?

In Jackson, Leon, Jefferson, Columbia, and Marion, to a small extent only. In the other counties reported as not used. In Leon, abandoned after few years trial as worthless. In Leon, applied mixed with flour, and with good results. In Jefferson, opinions differ as to value, the cotton is sometimes injured rather than benefited, and the danger to stock and to laborers is very great. The few experiments tried in Columbia proved beneficial, but rather expensive. In the manner in which the correspondent has seen it applied in Marion, it has a tendency to scald and kill the growing plant.

LABOR AND SYSTEM OF FARMING.

33. What is the average size of farms or plantations in your region? Is the prevalent practice "mixed farming" or "planting"?

In the upland counties, Jackson, Gadsden, Leon, and Jefferson, the farms are from 40 to 1,000 acres; in Gadsden the majority are 2-horse farms. In these four counties large farms are quite common. In the other counties the farms are small, varying in size from 10 to 150 acres, the majority being 80 to 120 acres. In Leon, Jefferson, and Marion, both "planting" and "mixed farming" are practiced, principally, however, "planting". In the other counties the prevailing pratice is "mixed farming".

34. Are supplies raised at home or imported? And, if the latter, where from? Is the tendency toward raising home supplies increasing or decreasing?

Part of the meat and nearly all the flour are imported; other supplies are to some extent raised at home, but different parts of the same county give different reports. In all cases, however, the tendency toward raising home supplies is generally increasing. Along the Gulf coast supplies are imported mostly from New Orleans; elsewhere the supplies come from Saint Louis, Cairo, Louisville, New York, and Savannah.

35. Who are your laborers chiefly? How are their wages paid? At what rates? When payable?

In the northern counties laborers are mostly negroes; further south native whites and negroes, the proportion of negro laborers decreasing southward. Wages are paid either in money, at the rate of $6 to $10 a month and rations, or 50 cents a day and board or 75 cents without board, or in part of the crop, which is generally one-half of the corn. The time of payment varies according to the contract. Payments are made by the day, week, month, and year, sometimes after sale of the first cotton. Yearly contracts are settled on the 1st of January; but the correspondents from Gadsden, Leon, and Alachua state that from 60 to 80 per cent. of the amount is usually advanced from time to time during the year.

36. Are cotton farms worked on shares? On what terms? Are any supplies furnished by the owners? Does your system give satisfaction? How does it affect the quality of the staple? Does the soil deteriorate or improve under it?

Jackson reports wages as the only system practicable in that county. The custom in all the other counties is to work on shares, except in Alachua, where the land is generally rented for a certain amount of cotton per acre. When the land-owner furnishes teams and implements he gets one-half the crop; when he furnishes all supplies in addition he gets two-thirds to three-fourths of the crop, according to contract. This system is reported as satisfactory, except in Gadsden, Leon, and Alachua, where it is considered only partially satisfactory. Jefferson says the negroes prefer this system, because by it they are able to do very nearly as they please.

The staple is thought by correspondents to be injured from Gadsden, Jefferson, Columbia, Clay, Alachua, for the reason that it is not promptly gathered.

The correspondents from Jackson, Leon, Marion, and Taylor observe no injury to the staple from this system. The soil deteriorates under the system because of constant drain without return; but correspondents from Suwannee, Hamilton, and Taylor do not observe any deterioration of the soil.

37. Which system (wages or share) is better for the laborer? What is the condition of the laborers? What proportion of negro laborers own land or the houses in which they live?

Gadsden, Leon, Jefferson, 1 Hamilton, 2 Columbia, Alachua, Marion, Sumter, Polk, and Volusia consider wages best for the laborer, since the laborer gets what he needs—direction and "following up"—and makes something; he runs no risk of accidents of weather, etc., and the laborer makes more than by the share system. By the latter system the laborer cannot be made to work steadily, and thus idles away more of his time. On the other hand, 2 Hamilton, 1 and 2 Suwannee, 1 Columbia, and Taylor believe the share system to be better for the laborer, and Jackson thinks the advantages about equal. As arguments in favor of the share system, it is thought that the laborer, if industrious, gets better pay, and that he can not spend his earnings as readily as he can money.

The condition of the laborer is reported as generally good by correspondents in Jackson, 1 and 2 Jefferson, 2 Hamilton, 2 Suwannee, 1 Columbia, 1 and 2 Clay, Hillsborough, Alachua, and Sumter, while those in Gadsden, Leon, 1 Hamilton, 1 Suwannee, 2 Columbia, Marion, and Polk consider the condition of the laborer to be very poor, as they are generally destitute and dependent. Jackson, Gadsden, Leon, Jefferson, Hamilton, 1 Suwannee, 2 Alachua, Marion, and Polk report a very small proportion only of the negro laborers own land or houses, not more than one-tenth, while 2 Suwannee, Columbia, Hillsborough, 1 Alachua, Sumter, and Volusia report over half the negro laborers as owning land and houses.

38. What is the market value of land described in your region? What rent is paid for such land?

No general statement of the market value of the lands can be given. It varies from $1 to $25, according to quality and locality. The poorer pine lands are worth from $1 to $3 per acre; uplands and hummocks from $5 to $25. The average rent charged for cleared and cultivated land is $1 50 per acre in money or one-fourth the crop, or 15 to 20 pounds of lint-cotton to the acre, or 500 to 1,000 pounds of lint for a 40-acre farm, according to locality of the land and the quality of the cotton. In some ocalities rent is as high as $3 an acre.

39. How many acres or 400-pound bales per hand is your customary estimate?

When other crops are cultivated the average long-staple is 2 to 3 bales to the hand and from 12 to 20 acres. In the upland counties from 6 to 8 bales to the hand and an average of about 15 acres.

40. To what extent does the system of credits or advances upon the growing crop prevail in your region?

In Jackson, Gadsden, Leon, Jefferson, Hamilton, Suwannee, Alachua, and Marion, and where cotton is the chief crop, the credit system prevails, and often to a ruinous extent, as in many cases the farmers are a year behind; the merchants are willing to advance on growing crops and take liens for heavy profits. No remedy seems possible under the present system of planting cotton exclusively. In the lower counties, Polk, Taylor, and Volusia, the credit system does not prevail to any great extent, cotton not being the chief crop.

41. At what stage of its production is the cotton crop usually covered by insurance? Is such practice general?

There appears to be no insurance on the cotton in any of the counties while it is in the producer's hands. It is insured when it reaches the market, not before; in some cases never.

42. What are merchants' commissions and charges for storing, handling, shipping, insurance, etc., to which your crop is subject? What is the total amount of these charges against the farmer per pound or 400-pound bale?

For the upland or short-staple cotton the charges are given at 1 cent a pound or $4 a bale in Jackson; 1¼ cents in Gadsden; nearly 2 cents in Leon; 1⅛ cents a pound or $5 a bale in Jefferson; $2 50 to $3 50 a bale in Hamilton.

For the sea-island cotton, $7 to $7 50 a bale in Suwannee; $8 to $10 in Columbia; $5 to $7, or 2½ per cent., in Clay.

In Alachua, 16 cents per pound. One correspondent says: "Commissions, 2½ per cent.; insurance, $1 a bale per month; amount of *stealage*, uncertain, but perfectly sure to come."

Marion, Polk, and Volusia report about $5 a bale, and Taylor about $9.

43. What is your estimate of the cost of production in your region, exclusive of such charges, and with fair soil and management?

For short-staple cotton Jackson reports 7½ cents a pound; Gadsden, 7 to 10 cents; Leon, 6 to 8 cents; 1 Jefferson, 6 to 7 cents in a good year; in a bad year the farmer will come out in debt; 2 Jefferson, counting interest on investment and services of owner, it costs 10 to 12 cents a pound, otherwise about 8 cents; Hamilton, about $25 a bale.

Of the long-staple we have the following estimates: 1 Suwannee, about three-fourths of its value; 2 Suwannee, $15 to $20 a bale; 1 Columbia, "My opinion is that it costs at least 4 cents a pound in the seed"; 2 Columbia, 20 cents a pound; 1 Clay, 15 cents a pound; Hillsborough, "It is usually claimed that it costs more than it sells for, but it brings ready money"; 1 Alachua, 30 cents a pound; 2 Alachua, 16 cents a pound; Marion, not less than 20 cents a pound; Sumter, about one-half its market value. The others give no estimates.

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